

# FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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The de Marçay-Moonen monoplane returning to its hangar at Issy-les-Moulineaux after the finish of the Paris Aero Salon. By virtue of its original system of wing mounting its dismantling in all probability occupied less time than any other machine at the Salon, it consisting merely of about a dozen rotations of a wheel mounted at the right-hand side of the pilot. The pair of wheels under the tail are rotatable in order to facilitate driving it along the ground.

# EDITORIAL COMMENT.

## The "Desecration" of Windermere.

Quite an interesting correspondence has been going on in *The Times* recently with regard to Mr. Wakefield's hydro-aeroplane experiments in the neighbourhood of Windermere. Canon Rawnsley opened the ball, with a letter extending to half a column in length, in which he quotes Wordsworth's protest against the coming of the railway to Birlhwaite, inveighs against the noise, the danger and the desecration of a beauty spot by the flying of the hydro-aeroplane, and complains that the erection of hangars at Bowness will spoil all the beauty of the place. Whatever Canon Rawnsley's outlook upon science and progress may be—and we are not inclined to pass judgment upon it—it must be admitted that he writes a charmingly poetic letter, with no small touch of pathos in it. We are content to accept his asseveration that he does not wish to be a spoilt-sport or to hinder science that may help the nation, but we do think he is needlessly alarmed. There are five square miles of water in the lake, while even in the summer the number of craft using it is scarcely sufficient to cause any grave misgivings on the score of possible accident. His point that flying in mountainous districts is admittedly dangerous, we are willing to concede up to a point, but it must be borne in mind that Mr. Wakefield's craft as it is, is largely the outcome of experiments conducted in the very region in which he has decided to make his permanent *point d'appui* and that he presumably knows what he is doing.

Mr. Wakefield himself takes up the cudgels on his own behalf in a letter which he has sent to us, and which was published in *The Times* of the 11th inst. In it he answers Canon Rawnsley's points *seriatim*, and we think, makes out a good case for himself.

With what we may for the purposes of argument call the personal matters at issue between the disputants we are not much concerned, but on the broad issues of the case we cannot help thinking that even though it may offend the conservative susceptibilities of many, the balance of interest lies in allowing the freedom of the lake for such experiments as Mr. Wakefield's. As he himself points out, other nations are experimenting with hydro-aeroplanes and for the sake of our national existence it behoves us to keep abreast of them in the knowledge and practice of the science. For the development of this type of craft large sheets of comparatively calm water are necessary in order that there may be something approaching continuity of experiment and unless we have the freedom of the larger lakes for the purpose we must inevitably fall behind. England is not particularly well blessed with land-locked waters which are suitable for such experiments as are necessary for the purposes under discussion and until such time, at least, as the hydro-aeroplane becomes a thoroughly air and seaworthy craft, it would be flying in the face of Providence to deny our inventors and experimenters every possible facility for working out the evolution of the machine.

## A Sign of the Times.

It is a significant indication of the progress that aviation is making, that the British and Colonial Aeroplane Co. has just had to increase its capital from £50,000 to £100,000, and even more significant that it has had no difficulty in obtaining money from its existing shareholders, without having had recourse to public subscription.

Commercially, we are sometimes told, aviation has but few possibilities. Flying can never be anything but an amusement, so far as it relates to the civilian population, and any future it may have lies entirely in its application to military purposes. Well, the prophets have more courage in their predictions than we claim to have—though this we will say, that our articles of faith are not bounded by the canons we have outlined above. For ourselves, our faith in the future is of that unbounded kind that would impel us, were we not restrained by our innate caution, to go to the other extreme in prophesy. But it is of the present that we are speaking at the moment—the future is with itself. Surely aviation on its commercial side must have progressed somewhat, when we find a firm—and a British firm at that, compelled to raise its capital to a good round sum like a hundred thousand pounds. To us it seems a most encouraging feature of the rapid development of the science and an earnest that at last we are on the eve of seeing established a real industry in these islands, comparable at least to that which has been built up with the assistance of the State in France. And we must not forget that to the British and Colonial Aeroplane Co. our congratulations are due to Sir George White and his co-directors for the success achieved in the face of enormous difficulties.

## Aerial Patriotism in France.

On the initiative of our Paris contemporary *L'Auto* a far-reaching scheme of military aeroplane service has been evolved, which, if it matures, will have the effect of enormously increasing the nation's aerial forces. Briefly, the idea is that each of the eighty-six departments into which France is divided should voluntarily provide at least one aeroplane of approved type for the use of the army, each machine bearing the name of the department by which it is provided. The idea seems to have been received with enthusiasm and the probability is that it will result in a very considerable reinforcement of the existing military aeroplane resources. While the idea is a very excellent one and much to the credit of our contemporary, we doubt that the time is ripe for emulation in Great Britain. In France the Government has helped along the movement by every means in its power; it has given the deepest attention to the possibilities of the aeroplane as an adjunct to national defence and it is spending a considerable amount of money in equipping the army with air-craft. Therefore, supposing the departments to fall into line with *L'Auto's* suggestion, there is nothing discernible but a patriotic desire to increase the country's defensive resources without throwing additional burdens on the public purse. The country is right in arguing that the State has done its duty up to the limit of its financial resources and that it is quite in accord with the fitness of things that private effort should supplement public enterprise.

In England, unfortunately, things are different, and any movement of the sort would savour of something very like charity to the State, or at least an attempt to achieve out of the private resources of the citizens what the Government have failed to do out of the public funds. It is not our purpose to criticise, especially as we really believe the Government has at last awakened to the position, so that we shall, at the moment, do nothing more than record the opinion we have expressed above.





OUR COUNTRY FROM ABOVE.—Above is Littleton, as seen from Consul Stollwerck's balloon "Dunlop" during a trip in August last to Newtown in Wales; and below is a snap of Worcester during the same trip.

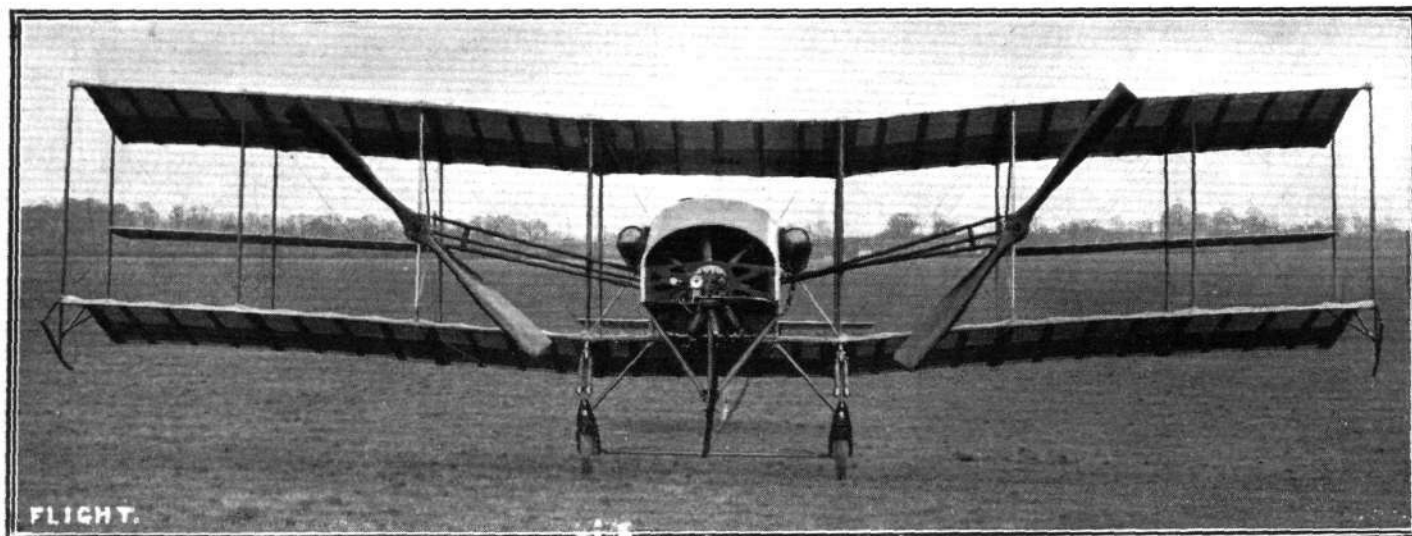
## "VIKING I."

"VIKING I" is a biplane, the first of that type to materialise from the ever-active brain of Mr. H. Barber. Although he has been so long connected with the single-deck type, the germ of this conception was sown long since in the days before he left Salisbury Plain to continue his experimental work in the north of London.

That he should have seen fit to produce such a machine at the present time is yet more evidence of the clearness with which he

leading place in the industry of aeroplane construction. Nor can two opinions exist as to the soundness of the design, whether viewed from the purely aerodynamical standpoint, whether examined in the light of ability to comply with the exacting requirements, or whether considered from the point of view of the pilot's safety.

Consequent with the adoption of the *fuselage* is the distinctly sound practice of disposing the engine in front of the pilot, a system



The Viking biplane, as seen from the front.

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grasps the ever-changing aspect of the development of aviation in this country, for it is evident to all students that the leading constructors of the world are now concentrating their attention on the development of two types of aeroplanes rather than identifying themselves with a single speciality.

"Viking I" differs from his previous productions in that it flies head first, also it is characterised as a biplane, by the possession of a

which was originated in this country and the advantages of which are just becoming apparent to our foreign *confrères*.

The main body is constructed throughout of silver spruce excepting in the region of the engine, where, in view of the extra strains that are placed upon it, ash is employed. Mounted at its forward extremity, with its inlet pipe extending towards the direction of advance, is the motor, a 50-h.p. Gnome. By means of a short



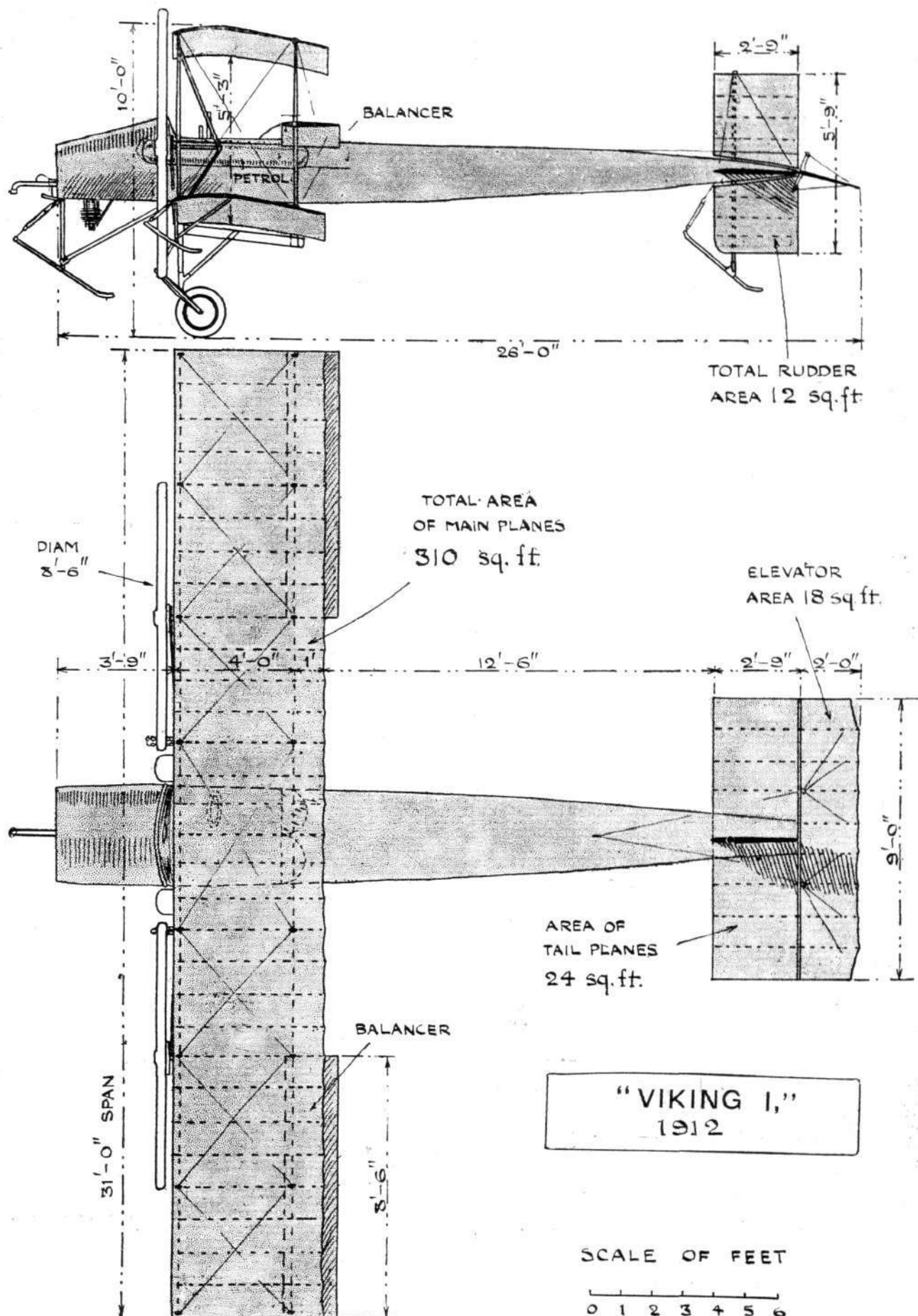
THE VIKING BIPLANE.—Half-side view, giving an idea of its general arrangement.

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definite *fuselage* or covered-in body, which has the engine in front and the pilot's seat just between the main planes. In its detail construction there is that same careful attention to minor matters and sound principle that has given the workmanship of the Aeronautical Syndicate, Ltd., who carry out all Mr. Barber's constructive work in addition to that of their numerous other clients, a

propeller shaft and twin chains arranged Wright-fashion the power is transmitted to the two A.S.L. tractors, that transform into effective thrust the rotary motion of the engine.

A well formed torpedo front of sheet aluminium is arranged over the engine and this together with a slanting screen of the same material at the rear, protects the pilot and passenger from any oil or



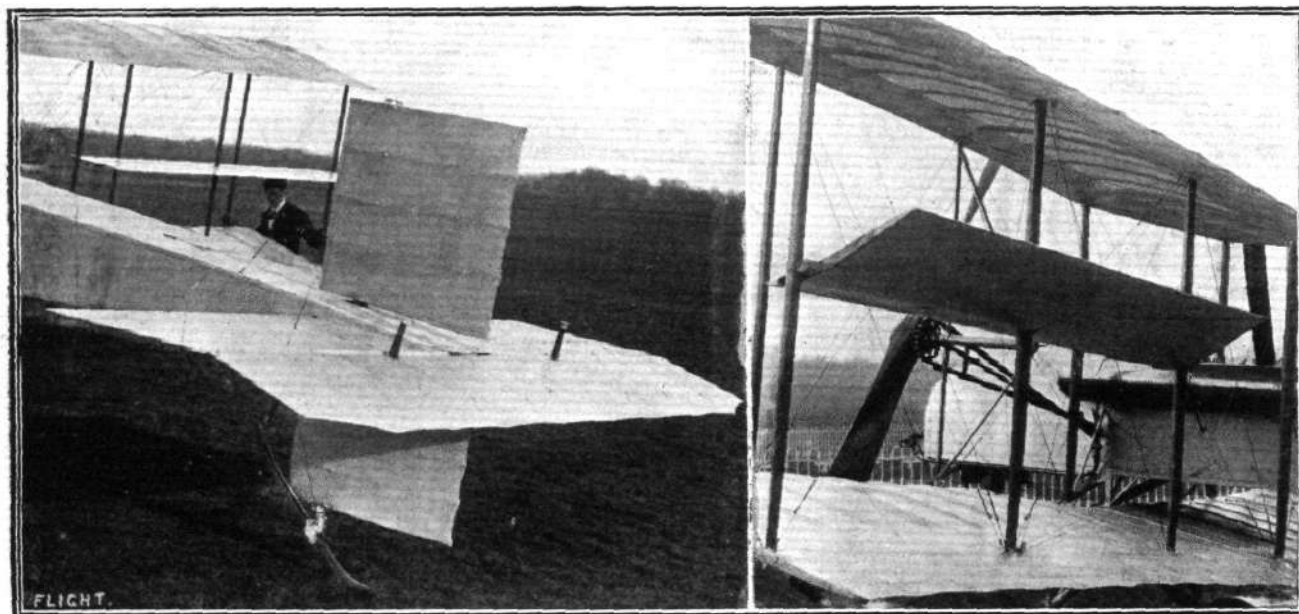
"VIKING 1" BIPLANE.—Plan and elevation to scale.



exhaust fumes thrown off by the motor. Apart from being used for these screens and for the construction of the novel balancers with which the machine is equipped, aluminium has been absolutely discarded as a medium of construction, its place being taken by sheet steel. Throughout its whole length the *fuselage* is covered in, at the forward end by the metal torpedo front and at the rear by fabric,

On the control wheel itself is a subsidiary switch by which the engine may be cut off or started again.

Not the least feature of note regarding this section of the machine is the comfort that is afforded the human complement. Constructors, in the midst of abstruse calculations and constructional problems, are apt to overlook such secondary points as this. Not



**THE VIKING BIPLANE.**—The illustration on the left is that of the tail unit; on the right that of the novel metal warping balancers with which the machine is furnished.

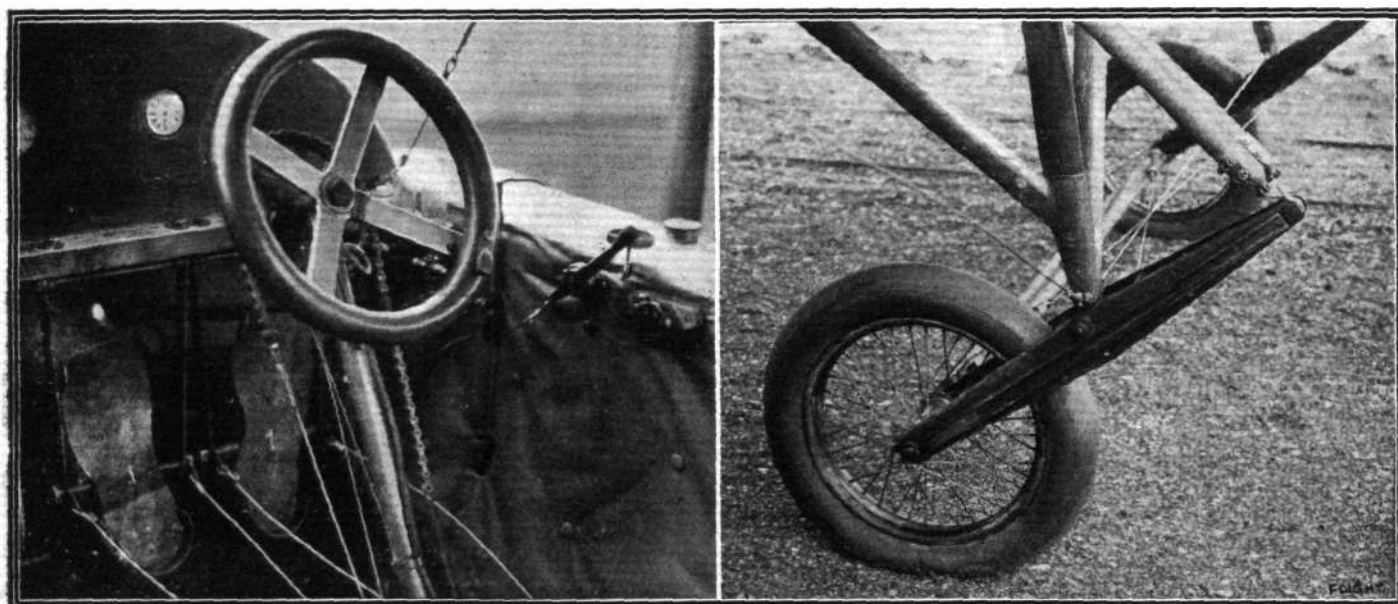
so that its passage through the air may give rise to a minimum of disturbance.

Directly underneath the top surface is the cock-pit, about four feet in length by three feet in width, where are accommodated side by side, the pilot and passenger. The former, who sits on the right-hand side, has before him a vertical wheel, mounted on a vertical column which latter is pivoted at its base so that it can be moved away from or towards the operator. Rotation of the wheel laterally controls the inter-connected balancers on either side, and a to-and-fro movement of the column as a whole controls the attitude of the

so the Viking engineer, he provides the most comfortable of bucket seats, and completes the snug appearance of the cock-pit by upholstering it in leather, and covering the floor with a square of Turkey carpet.

Tanks for the storage of enough fuel to keep the Gnome motor in operation for six hours are arranged on either side of the body, and glass gauges proceeding from them into the interior keep the pilot well informed as to the actual state of his supply. Feed is by gravity.

At the rear end of the body is disposed the tail-unit whereby



**DETAILS OF THE VIKING BIPLANE.**—On the left the arrangement of the controls in the pilot's cockpit. Note the petrol gauge in the interior of the body. The photograph on the right illustrates the details of the landing gear.

aeroplane in flight. Placed forward and on either side of the control column is a pair of pedals operating the vertical rudder. In full view of both pilot and passenger is a dashboard where are arranged an altimeter, a compass, a revolution indicator, a watch, and oil and petrol gauges to aid in cross-country work, while, convenient to the right-hand of the pilot are the engine controls.

control over the machine in the two dimensions of direction and altitude is maintained. Hinged to the rear of a horizontal surface of streamline section, 9 ft. in span by 2 ft. 9 in. in width, is a flap that serves the function of elevator.

A noticeable feature regarding the design of the tail is that the elevator may be removed by the mere unscrewing of a nut and locknut,

and the withdrawal of a single thin steel rod that serves as a common core to the several hinges from which this organ depends. Each side of the flat tail surface is applied to the body much in the same fashion as a monoplane wing, its two booms fitting into sockets, while it is held in correct position by four steel wires. This system commends itself in that the whole of the tail unit can, when necessary, be dismantled in a minimum of time with a minimum of trouble.

Mounted at right angles to the horizontal tail surface is the directional rudder, half above and half below the fuselage. This is pivoted at its average centre of pressure and is operated by means of a crank arranged in the interior of a covered-in body. A small wooden skid, swivelling about the base of the rudder mast and connected to the body at its upper end by means of a shock absorber affords protection for the tail unit against contact with the ground.

The *cellule*, 31 ft. in span is composed of two super-imposed single-surfaced planes, separated by a gap of 5 ft. 3 ins. Viewed from the front, its centre section, of 6 ft. span, is horizontal, while the two end sections, each of 12 ft. 6 ins. in span are given a characteristic arched dihedral angle, the horizontal end projection of which is approximately nine inches. Two triangular skeletons of steel tubing, securely mounted between the planes and braced thereto by steel tension wire, support the two tractors, their centres being separated by a distance of 14 ft.

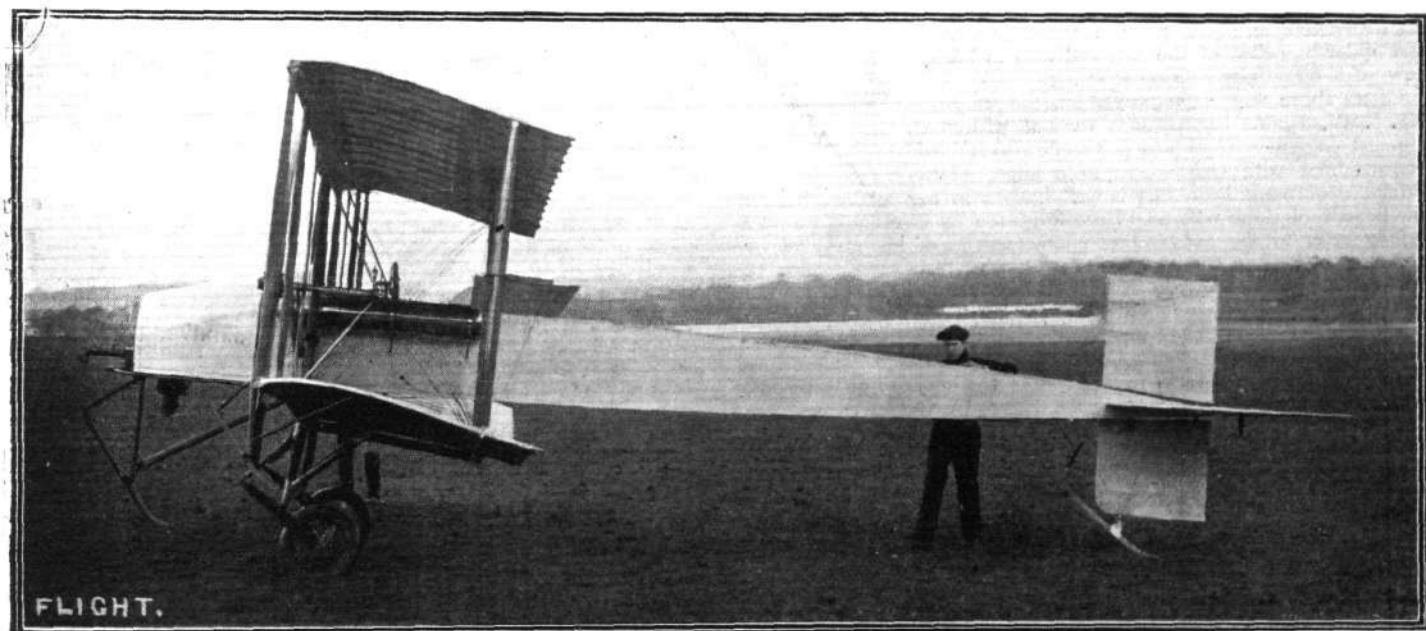
Both planes are perfectly rigid except for a small degree of flexibility that is allowed the trailing edge by virtue of its overhang. Probably the most novel and interesting feature of the machine is the system of balancing employed. The balancers, being arranged at ever-changing angles of incidence, according to the will of the pilot and the conditions of the machine in flight, automatically and simultaneously assume a camber best suited to the angle of incidence at which they are at the moment working. The surfaces of these



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Detailed view of the front of the new Viking biplane.—The mounting of the Gnome motor, the details of the landing gear, of the forward skid, and of one of the twin tractors are clearly shown.

centres to an enormously strong forged steel fitting, to which are assembled the ash chassis struts proceeding from the lower plane. The upper end of each cantilever is anchored to the body of the machine by a pair of rubber shock absorbers. Uniting the two wheels is a tie rod, and diagonal wires carrying miniature shock absorbers are introduced to keep them parallel to the geometrical axis



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THE VIKING BIPLANE.—Side view, showing the covered-in body and arrangement of the tail.

organs are formed of an aluminium alloy reinforced with spring steel ribs, a clever but simple sliding arrangement allowing for the alteration in the length of the top surface according to whether it is concave or convex. Its conception is so extremely simple that until one remembers that it is usually the most simple things that are the most difficult to discover, one is surprised that it has not been thought of before. The advantages that this system possesses on the score of its efficiency are undoubted. As regards the undercarriage, not only is it of novel design but possesses the attributes of simplicity, adaptability and strength, combined with a low factor of head resistance. Each wheel, as can be seen from one of the photographs, is mounted between a pair of cantilevers, constructed from heavy gauge sheet and channel steel. These latter are universally jointed at their

of the machine. To prevent any damage resulting from too steep a landing a skid is fitted to the extreme nose of the body and two similar skids, but of smaller dimensions, are arranged at each end of the *cellule* to protect the wing tips. These are allowed universal motion and are governed by shock-absorbers.

Weighing 800 lbs., the machine has been designed for a speed of 55 miles per hour, and to carry its double human load for a non-stop flight of six hours. In the matter of speed, the intentions of the designer have been more than realised, for in practical tests that have recently taken place, this 55 miles has been handsomely exceeded. The Viking biplane undoubtedly represents a considerable advance on the admittedly sound work of the A.S.L. establishment, and if sheer merit goes for anything these days, it should pave the way for an exceedingly prosperous business year.

## THE DUNNE STABLE AEROPLANE.

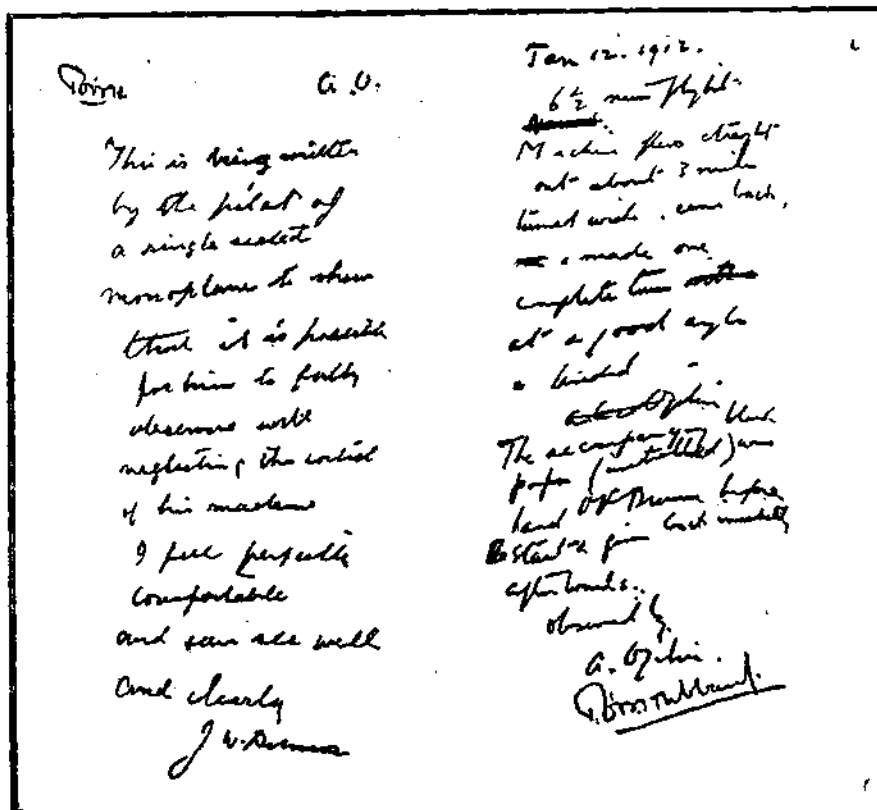
AFTER much patient work, following upon years of even more patient research, Mr. J. W. Dunne appears to be meeting with some of the success that he so well deserves in the practical application of his principle of natural stability. Now that his aeroplane is engined with adequate power, the machine as a whole displays somewhat more vigour in the element to which all flying machines are supposed to belong, and the result has been several successful flights of more or less extended duration. During one in particular, which took place on Friday last week, Mr. Dunne sought to give some tangible evidence of the fact that his machine was stable at least to the extent that it would fly without hand control for a sufficient period to enable him to write a note of appreciable length.

The manuscript of this little essay we reproduce, and add thereto our congratulations to Mr. Dunne on his achievement. Those who attended the Aeronautical Society's recent discussions on the military aeroplane can hardly fail to have recognised the significance of a point often raised on the military side, particularly by officers of higher rank, as to whether it would be safe to rely upon the verbal reports of pilots who were unable to take notes and whose machines were unable to accommodate passengers for that purpose. Again, it was also made particularly clear at those meetings that in the practical use of what was described as the destroyer or "B" type military aeroplane, the ability to shoot straight from on board would be essential; which means that steadiness in flight might well be at a premium in a combat between two machines in the air. We mention the military side first because, for the moment, it is the only aspect of aviation that shows any degree of real vitality in this country, but the truth of the matter is that the acquisition of a reasonably high degree of natural stability in aeroplanes would do more than anything else just now to revitalise other and older branches of the art, and also to bring new fields of activity into existence.

Of all those who have worked on the subject, Mr. J. W. Dunne has perhaps worked with the greatest singleness of purpose in his effort to endow his machine with this particular quality. His principle of natural stability is well known to our readers, but for the benefit of those who may have forgotten its essentials, we may briefly refer to the outstanding characteristics of his machine by pointing to the V-plan form of the wings and their variable camber between shoulder and tip. The Dunne aeroplane is tailless, but the fact that the wings slope backwards causes their tips to serve the purpose of a tail, inasmuch as they lie well behind the centre of the machine. Also, the fact that the camber and attitude varies from shoulder to tip, introduces the principle of the longitudinal dihedral, which has always been accepted as a basic principle of natural fore and aft stability. The question of lateral stability in the Dunne monoplane is one of greater complexity, but, broadly speaking, it seems to be associated with the shielding effect of the negative attitude assumed by the wing tips in respect to the normal line of flight. In this connection, it has seemed to us particularly interesting to note an observation by Dr. Hankin, to the effect that

he has seen many birds rolling downwards the front edges of their wing extremities during some of their manoeuvres.

In his flight on Friday last, Mr. Dunne was aloft for 6½ minutes and made two turns. Before starting he took a piece of paper that had previously been initialised by Mr. Alec Ogilvie, himself a well-known pilot of the Wright aeroplanes in England, and Mr. T. O'B.



A reduced facsimile of Mr. Dunne's original aeroplane message.

Hubbard, Secretary of the Aeronautical Society. The note reproduced above was written while the machine was flying at a speed estimated in the order of 60 m.p.h. While writing it Mr. Dunne took both hands off the control so that the direction and equilibrium of his machine was entirely maintained by its natural stability. It will be understood, of course, that this natural stability is an attribute of the peculiar form of the wings, as described above, and is not due to any mechanical appliances whatever. In a word, natural stability means that the disturbing element, such as a wind gust, automatically gives rise to its correct antidote, because of the peculiar design of the machine. On the Dunne monoplane, on which this feat was accomplished, the only controlling organs are two small flaps hinged to the wing tips, which flaps are independently controlled by separate levers, and are purely directive organs. When moved together they alter the attitude of the machine, so that it climbs or descends. When moved separately they steer.

## DR. HANKIN ON DEVELOPMENT OF ANIMAL FLIGHT.

DR. HANKIN, who recently arrived in London, will be giving a lecture on the "Development of Animal Flight" before the Aeronautical Society, at the Royal United Service Institution in Whitehall, next Monday evening, January 22nd. Those of our readers who are not members of the Society would do well to apply to the Secretary, at 53, Victoria Street, S.W., for cards of invitation, for the lecture is certain to be of exceptional importance and, in view of Dr. Hankin's recent articles in FLIGHT, we can scarcely imagine anyone either better able to deal with the subject, or more likely to interest an audience in its salient features.

Whatever abuse may have been made of so-called bird-like methods by would-be inventors, the fact always remains that the study of bird flight is an essential part of the education of the aeroplane builder. He may not be able and he may not desire to copy what birds do, but at least he should know what they do, for without question they are the masters of the art in which man is just beginning his kindergarten course. It is all very well to say one

must know what birds do, but it is not easy to find out the facts, and, while there are endless people willing enough to make statements based on conjecture and supposition, few indeed are either willing or have the opportunity, or, being possessed of both, have the ability to really devote hours to a close study of the subject. Lilienthal was, perhaps, the first. He made a point of taking his holidays in a little German village where storks innumerable build their nests on the house-tops. Dr. Hankin is another, and he has made use of the natural opportunities afforded by his environment in India where, in the vicinity of Agra, soaring birds of many species perform their evolutions within easy sight and often in apparent calm.

Dr. Hankin is a man who has shown himself to be a trained observer of the first order, and his painstaking labours have enabled him to put on record observations of the movements of these soaring birds, the knowledge of which forms such an important part in the study of flight.



# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Committee Meeting

A MEETING of the Committee was held on Tuesday, the 16th inst., when there were present:—Mr. R. W. Wallace, K.C., in the Chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Capt. Bertram Dickson, Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Mr. Alec Ogilvie, Mr. Mervyn O'Gorman, Mr. C. F. Pollock, Mr. A. M. Singer, and Harold E. Perrin, Secretary.

**New Member.**—The following new member was elected:—Lieut. H. E. Watkins.

**Aviators' Certificates.**—The following Aviators' Certificates were granted:—

173. Tom Garne (Bristol, Brooklands).

174. Lieut. Napier John Gill, R.G.A. (Deperdussin, Brooklands).

175. Frederick Bernard Fowler (Blériot, Eastbourne).

The request of the Aero Club de France to grant an Aviator's Certificate to Mr. D. Corbett Wilson was sanctioned.

## Annual General Meeting.

The annual general meeting will be held on Thursday, March 28, 1912.

Notices of motion for the general meeting must be received by the Secretary not less than twenty-one days before the meeting, and must be signed by at least five members.

## Australian Commonwealth.

A letter has been received from the Australian Commonwealth Offices forwarding a copy of the instructions received from the Commonwealth Government, which are as follows:—

Proposed to appoint two expert mechanists and aviators, Defence Department; salary per annum £400 including all allowances, except travelling; applications to be invited by advertisement, receivable by you up to and including February 1st; candidates to state nature of qualifications and experience, military experience, whether born or domiciled Australia, age, married or single.

Commonwealth accept no responsibility for accidents. Applications also invited, Australia.

Successful candidates will be appointed for twelve months' probation, on conclusion of which, if satisfactory, appointments may be confirmed.

Obtain tenders or quotations from approved firms, two monoplanes and two biplanes and necessary spare parts. Successful tenderers to undertake to put two aviators through course of instruction in manufacture of machines and aviation, sufficient familiarise them with machine and enable them to make all necessary repairs; tenderers to submit schedule prices for supply extra parts.

The aviators must be British subjects and the aeroplanes of British make.

Enquiries should be made direct to: Capt. R. Muirhead Collins, R.N., C.M.G., Secretary, Australian Commonwealth offices, 72, Victoria Street, Westminster, London, S.W.

## Army and Navy Aviation Prizes. (Presented by Mr. A. Mortimer Singer.)

Army ... £500 Navy and Marines ... £500

This competition closes on March 31st, 1912. Rules and entry forms can be obtained from the Club.

The following are the distances so far recorded:—

Army.—Late Lieut. R. A. Cammell, R.E., 100 miles.

Navy and Marines.—Capt. E. L. Gerrard, R.M.L.I., 129 miles.

## British Empire Michelin Cup No. 2, £600.

This prize may now be competed for, and the rules and entry form can be obtained from the Club.

## Gordon-Bennett Aviation Cup.

The cup having been won by a representative of the Aero Club of America, the race for 1912 will take place in the United States. The exact time and place will be announced later.

At the recent Conference of the Fédération Aéronautique Internationale in Rome, it was decided that the course is to be a closed circuit with a minimum of 5 kilometres, and the total distance to be flown is 200 kilometres.

Each club affiliated to the Fédération Aéronautique Internationale has the right to challenge the holder, the Aero Club of America, and such challenge must be sent in before March 1st, 1912.

The Committee of the Royal Aero Club will select the three competitors to represent the British Empire, and intending candidates are requested to notify the Secretary on or before February 15th, 1912, of their willingness to compete, if chosen. Applications must be accompanied by a cheque for £20, the entry fee, which amount will be returned should the entrant not be selected.

## Lantern Slides.

The Club receives many applications for lantern slides for lectures on aviation, and several members have kindly presented slides for this purpose. In order to make the Club collection more complete the Committee will be glad to receive gifts of slides and negatives or photographs from which slides can be made.

## Presentation of Picture.

Mr. E. T. Willows has kindly presented to the Club a framed enlargement of his dirigible balloon "E. T. Willows No. 3."

166, Piccadilly.

HAROLD E. PERRIN, Secretary.

## Bristol and West of England Ae.C. (STAR LIFE BLDGS., BRISTOL).

ON the 11th inst., Miss Gertrude Bacon paid a visit to Bristol and gave an interesting lecture before the club of her work in connection with aeronautics. Of course, a large part of the lecture was taken up with the experiences of Miss Bacon and her father in balloons, and by the aid of a lantern she showed a wonderful collection of photographs taken from above, including several views of Clifton. Passing on from the balloon Miss Bacon dealt with airships, and then referred to the great progress which had been made during recent years with the aeroplane, a very fine series of slides showing the various types being thrown on the screen.

## North-Eastern Ae.C. (late Northumberland and Durham Ae.C.)

AT the second annual meeting of the club, the President, Sir Charles A. Parsons, presiding, mentioned that although the club was affiliated with the Royal Aero Club, nothing had been done in a large way to further the interests of aviation in the district. The club had the free use of the ground at Gosforth Park which was

taken for the *Daily Mail* competitions. The club had been in existence some 2½ years. The membership was now 70, and was considerably increasing. A series of lectures were being arranged to be given to the members at an early date by well-known experts. Discussion will be invited, and models, &c., shown. Two lectures have already been arranged.

The following gentlemen have agreed to act as Vice-Presidents:—The Right Hon. Viscount Ridley, Sir Chas. Morrison-Bell, Bart., Sir Riley Lord, Major J. S. Laycock, Mr. A. H. Higginbottom, Capt. Cuthbert, D.S.O., Mr. J. H. B. Noble, Mr. H. I. Brackenbury, Prof. H. Stroud, and Mr. Summers Hunter.

The offices of the club will be removed to Milburn House, "A" Floor, with Mr. C. S. Vesey Brown as hon. secretary and Mr. L. Robson as assistant secretary and treasurer, and the following gentlemen will act as committee for the next year:—Messrs. J. Duncan Hodgson, G. Edward Carr, J. Cusworth, A. Q. Carnegie, J. H. Holmes, A. W. Bridges, Gerald G. Stoney, T. S. Nyborg, C. R. F. Engelbach, I. F. Fairbairn-Crawford, S. Wilson, and A. Wimple, with power to add to these members if found necessary.

It was determined to change the name of the club to the North-Eastern Aero Club (Counties of Durham and Northumberland).

## FROM THE BRITISH FLYING GROUNDS.

### Royal Aero Club Flying Ground, Eastchurch.

EASTCHURCH last week had a very busy time although the weather throughout was rather unsettled, and the winds frequently very gusty. A further batch of naval officers, viz., Lieut. Randel, R.N., Lieut. Seddon, R.N., and Captain Gordon, R.M.L.I., are now undergoing an aviation course at Eastchurch, including technical training in the Short factory as well as tuition in actual flying. With the characteristic promptness of the service they are already well on the way to try for their pilots' certificates, having put in some strenuous work since their arrival. Capt. Gordon, R.M.L.I., is, of course, already well known as a flyer, having taken his pilot's certificate at the Bristol school some time ago.

On Wednesday, the 10th inst., Frank McClean tried his new Short tractor biplane, which was just out of the factory. After running the engine for a short time, McClean took the machine up for its first flight, and was so satisfied with its behaviour that he had no hesitation in continuing to fly for the remainder of the afternoon. The machine showed itself to be very swift in the air, and in the opinion of the aviators watching the trials, must have been doing something like 55 to 60 miles per hour. A distinctive feature of the test was the perfect way in which McClean made his landings, and the very flat gliding angle of the machine, which owing to its small head resistance and general design, is very efficient in this respect. The machine is fitted with a 70-h.p. Gnome engine, driving a 9 ft. propeller, and has a fuselage non-lifting tail. Travers, who does not miss a single opportunity of flying, was out with the Territorial pupils who are making excellent progress; already Sergeants Hubbard and Hedley, also Cutler and Barton, are capable of taking charge and making short flights on their own account. Capt. Carden, who was piloting the Dunne biplane made several short flights, being out chiefly to test the steering control, which after slight improvements is now very effective.

On Thursday McClean was again out on the tractor biplane, whilst Capt. Gerrard, R.M.L.I., on the Short No. 38, and Lieut. Gregory, R.N., on the triple propeller twin-engine machine, were out from early morning until dusk, putting the new naval pupils through their paces.

In the afternoon the Aerodrome was visited by Admiral Sir Richard Poore, K.C.B., &c., Commander-in-Chief of the Nore, who accompanied by Captain Paine, of H.M.S. Actæon arrived on the ground in time to see the completion of a magnificent *vol plané* by Lieut. Gregory, who with his engine stopped, glided down and came to a standstill almost at the Admiral's feet. The Admiral was keenly interested in all that was going on and after witnessing two excellent exhibitions of monoplane flying by Lieut. Samson and Lieut. Longmore, on the Blériot, expressed a desire to make a flight and was taken up by Capt. Gerrard, R.M.L.I., on the Short No. 38 Biplane for a flight lasting twenty minutes, an experience with which he was highly pleased. Another distinguished visitor, during the day, was Capt. Seymour Erskine, A.D.C., Commodore R.N. Barracks, Chatham, who was also piloted for a short flight by Capt. Gerrard.

On Friday, most of the aviators were out practising, including Lieut. Dunne, who made an excellent flight on the Gnome-engined Dunne monoplane.

Mr. Alec Ogilvie was also in the air frequently during the week on the N.E.C.-engined Wright biplane, which is now in excellent flying condition, doing by actual test over 45 m.p.h., and climbing when required at a remarkably steep angle. The N.E.C. engine used by Ogilvie is in excellent running order, and judging by the reduced sound on Saturday, it has been fitted with an effective silencer. Saturday was a very busy day, all the aviators being out, including Jezzi, who piloting his high-speed biplane, made several excellent flights. Mr. V. A. Barrington-Kennett, of the Territorials, and Mr. S. P. Cockerell were down on Saturday for the week-end, and got some fine practice on the School machine. Barrington-Kennett made what was really the "Territorial" flight of the week on Saturday, remaining in the air for nearly three quarters of an hour, doing some sharp banking and figures of eight which would easily have gained him his pilot's certificate, and considering that he has only had charge of the machine on two previous occasions he has made wonderful progress.

Just as it was growing dusk, Valentine appeared over the grounds on the Deperdussin monoplane, and after making one or two circles, alighted. After filling up with petrol he was off again intending to get to Brooklands, in which direction he disappeared at a great altitude. He was back again some fifteen minutes later, evidently realising that he could not accomplish the journey before dark.

The event of the week was undoubtedly Lieut. Samson's flight from the battleship "Africa," a feat which the intrepid aviator accomplished with great skill. The start being visible from the shore at Sheerness, this accomplishment has naturally been given some

publicity by the Press, otherwise actual photos and details have not been obtained.

### Brighton-Shoreham Aerodrome.

PRACTICALLY every day last week has seen outdoor work going on. The Chanter school was very busy on Wednesday, the 10th. Kent got off the ground for the first time, and made a very steady straight flight on the Blériot. Gassler and De Villiers were both up several times, and Hamilton-Ross put in a flight or two both on Wednesday and Thursday. On Friday, Gassler was doing a long flight in splendid form on one of the school Blériots, but had the misfortune to run into the wire fence between the hangars and restaurant, damaging the machine but escaping unhurt himself. Saturday saw Chanter doing cross-country work on the 40-h.p. Anzani-Blériot. In the gathering dusk his flying was brought to an untimely end by a down current of air which caused a rather abrupt landing in a field adjoining the Lancing College. The machine was smashed, but Mr. Chanter was unhurt, having been thrown clear.

The Collyer-England machine has been undergoing an overhaul, and has only appeared outside on one or two occasions. On Wednesday England had her up and down the ground several times, and on Thursday Dowland was testing her. A cheer was raised when this neat biplane came spinning towards the sheds "two up."

### Brooklands Aerodrome.

PERCIVAL, on Wednesday last week, was testing his new biplane, which was flying circuits in really good style, and straight lines with a passenger. Fisher did straight flights on the Vickers, and Sykes, who it will be remembered obtained his ticket at the Bristol school, put in some rolling practice on the same machine. Parke was out on the Viale-Avro, flying well as usual. Gill, on the Deperdussin, put up a remarkable performance by obtaining his *brevet* under unusual conditions. Before commencing the second figure of 8 his engine began to fail, but by extremely skilful handling he managed to pass all the tests.

Cadet Wheeler flew the Bristol very well indeed on Thursday at about 1,500 ft. for about half an hour. Then Pizey took up Gill, now a full-fledged aviator, for a passenger flight, ending in a very steep *vol piqué*. Cadet Robinson, back to work again at the Deperdussin school, did some rolling and hopping practice on the taxi.

In the afternoon Kemp was out on the Vickers, which is flying better than ever, followed by Fisher, who also put in some circuits. Spencer was out, and Parke prevailed upon the Deperdussin school to let him have out one of the school taxis, which he managed to keep off the ground for several periods. Pizey took up several pupils.

On Friday, Sykes was rolling on the Vickers and Cadet Robinson on the Deperdussin taxi. The Avro school was hard at work most of the day, Setti and Young practising, and Sippe giving exhibitions of flying with hands off the controls. Spencer was out flying circuits with one aileron accidentally locked. This little eventuality, however, did not seem to worry him much. Percival flew strongly for some time with tail high, and Sippe went up again on the Green-engined Avro, flying in exceptionally good style.

On Saturday Parke started off on his way to Oxford for his superior *brevet* on the Viale-Avro with sufficient petrol and oil for two hours' flying, an additional supply of oil being carried in a can. Though leaving the aerodrome at not more than about 450 ft., we hear later from him that by the time he was over Chertsey the machine had climbed to over 1,500 ft. Here he ran into fog, but was able to follow the railway line to Ascot, where he lost himself in still thicker fog. Managing to pick up his course by compass, he found himself over the Thames, probably at Reading. Considering it more advisable to follow the river the whole way than to risk losing himself again, he did so, and flew above it at about 700 ft. Near the Chilterns he had a very bad time for about 10 or 15 mins., but passed them satisfactorily. At Abingdon, however, his supply of oil ran out, so he was forced to come down, and fill up from the spare can. Owing to his eyes being full of oil and exhaust-gases, he made a rough landing, breaking two wires. Obtaining a car, he drove to Oxford, where he met Mr. Gooden, the new manager of the aerodrome. The latter gave him some wire, and, on returning to Abingdon, Parke was enabled to make the necessary repairs. By this time, however, the engine was cold and absolutely refused to start, so, as it was getting dark, he pegged it down for the night. The next morning weather conditions were unfavourable for a return flight, so the machine was taken to pieces and carted to a neighbouring garage. The wings were taken off in such a manner that they could be replaced without necessitating careful adjustment, which is an extremely convenient thing to be able to do in such an eventuality. The time taken for dismantling the whole machine was one hour and five minutes. Sippe flew the Green-Avro, and Cadet Robinson made hops on the Deperdussin taxi. Both Kemp and Fisher did



circuits on the Vickers, which now flies with its tail very high. Hunter was tuning-up the Humphreys monoplane, and later Percival made some really fine flights on his biplane, which, although somewhat slow, climbs and glides exceedingly well. Ducrocq came out on his Nieuport for a short while late in the afternoon.

On Sunday there was not a great amount of flying. The Vickers, however, was out under the pilotage of Kemp and Fisher, and the Spencer and Percival biplanes also took the air. The latter machine, although flying well, made some dangerous looking banked turns.

Monday was a bad day for flying, but Ducrocq on the Nieuport was out in the morning first thing, and later Pizey was flying.

**Bristol School.**—Wednesday last week Pizey made a trial of the air, but owing to a thick fog coming up, no further flying was done until the afternoon, when he went up with Merrian as passenger. The latter then put in some solo flying. Nesham, when out rolling, made too quick a turn when a few feet from the ground, and tilting over, slightly damaged an *aileron*.

Next morning Pizey was up again, but found it gusty. Cadet Wheeler then made a long flight. In the afternoon Pizey made a trial of one of the machines after an overhaul of its engine, rising to 1,000 ft. in one circuit and a half. He then went with Lane for instruction first in high flying, and then in landing. This pupil is making marked progress. Merrian then flew circuits, making good landings. Pizey was up at 1,000 ft. with Lane and with Nesham on Friday morning, then with each for landing practice. Merrian again flew circuits very well. In the afternoon exactly the same proceedings were carried out again.

On Saturday, Pizey was out first, as usual. He took Lieut. Smith for altitude and low flying practice, following with Lane for the same purpose. Merrian then flew by himself for ten minutes. In the afternoon Smith and Lane had a further lesson. Merrian and Smith both flew solo, the latter making straight flights with good landings. Lane was out rolling. Pizey then gave Merrian instruction in right-hand turns and *vol planés*. After this he took up Mr. George Lloyd, M.P., as passenger, who was delighted.

The afternoon's flying was started on Sunday afternoon by Pizey taking up Lieut. Smith, he finding the air very disturbed. Subsequently he took up Mr. Ebben a visitor from South Africa.

On Monday morning there was no flying, but in the afternoon Pizey was up with Lane and Nesham, for straight and circuit flights, finding the air too disturbed for pupils by themselves. Though Pizey gets an enormous amount of instruction done, he very wisely refuses to run the risk of having the machines smashed by inexperienced pupils in a wind, and he is to be congratulated upon the all-round success of his methods of teaching.

**Vickers School.**—After blowing hard all Thursday morning last week, the weather fined down in the afternoon and the school machine was out with Kemp as pilot, flying five circuits well up about 700 ft. Fisher then took over the machine, and after trying one straight line, did two circuits. Later Kemp again went up and put in three more circuits.

It was very foggy early next day, but cleared sufficiently by mid-day to allow a new pupil, Capt. Sykes, to go out rolling for 55 minutes and again in the afternoon for 30 minutes, showing great improvement in the afternoon.

On Saturday it was raining hard till 10 a.m. when a change came over the scene, and Kemp had the school machine out flying three circuits about 600 ft. up. Fisher followed with two circuits, and Lieut. Beatty, another new pupil at this school, was out in the afternoon doing straight lines and handling the machine well.

Kemp put up three circuits on Sunday afternoon at about 200 ft. up, although a very gusty wind was blowing all day.

#### Filey School (Blackburn Aeroplane Co.).

THE weather has been rather bad for flying during the past week, but some short practice flights have been put in by Brereton and Hunt on the Isaacson-engined Blackburn.

Laurence has arrived at Filey where he will remain one or two days, and hopes to get some practice preparatory to taking the machine to Shoreham, where he intends to fly for a few weeks.

#### London Aerodrome, Collindale Avenue, Hendon.

**Grahame-White School.**—Wednesday last week was foggy all day, and pupils had to confine themselves to the workshops.

Next morning the wind was too high for flying, and the afternoon was wet and foggy. Although dull on Friday there was no wind, consequently the school was busy all day, one machine putting in no less than five hours' constant work. The morning's flying commenced by Fowler taking out biplane No. 3 and doing steady straight flights at about 50 ft. Biard was also out, rolling and doing short hops on the beginner's Farman; Raphaite and Major Liles were also out most of the morning, the latter controlling the machine in fine style. In the afternoon Fowler, Biard, and Major Liles were all making straight flights,

whilst Raphaite and Lieut. Stopford, R.A., put in a great deal of rolling practice. A notable pupil put in an appearance during the afternoon, to wit, Mr. T. O. M. Sopwith, who, for the edification of himself and the pupils, piloted the old school bus several times round the aerodrome, after which the new school biplane, which was waiting for testing, was brought out and flown by him, Mr. Sopwith later testing her weight-carrying capabilities, taking Mr. R. Gates up.

Weather was again dull on Saturday, but good for school work. In the morning, Fowler, Raphaite and Lieut. Stopford were all out on biplane No. 3, the former making splendid straight flights with excellent landings. He should in another week be ready to take his *brevet*. In the afternoon, Lieut. Stopford was out on No. 3 followed by Raphaite, Fowler and Major Liles, the last named making steady flights. Fowler and Gates were out on biplane No. 2 which, with its 50-h.p. Gnome, is about 10 miles an hour faster than No. 3, consequently wants watching more closely. During the afternoon, Handasyde had the Martin-Handasyde out of her hangar and put the engine through a good test, getting 1,380 revolutions per minute out of her on the ground.

Monday was bright in the morning, but windy; in the afternoon, rain and fog started, in spite of which, however, Mr. Tom Sopwith was out on the Martin-Handasyde for a couple of spins round the aerodrome, getting lost, however, on the Mill Hill side. Considering the weather a bit too thick for pleasant flying he taxied back to the hangars. Next day the morning was windy, and the afternoon wet, so that air work was a neglected quantity.

**A.S.L. Flying School.**—Wind and fog prevented any flying last week until Thursday, when Mr. Barber took the new Viking biplane off the stocks, and subjected the machine to numerous exhaustive tests. Mr. Barber first ran the machine over the ground at high speed in order to thoroughly prove the strength of the landing chassis. He then let the machine have its way into the air and made many very successful flights. She got away from earth after a remarkably short run, and appears to have extraordinary climbing powers. The patent balancers, fully described elsewhere in this issue, proved enormously effective, the slightest movement of the control wheel instantly combating any wind-gust. Altogether the initial trials were an unqualified success. Again on Friday the A.S.L. had a very busy day. In the morning Mr. Barber was out on the Viking, making numerous flights for more than half an hour. In the afternoon it was quite calm but rather foggy, and numberless machines were out, rendering the air very disturbed and tricky. Mr. Barber, however, took the Viking up several hundred feet and flew circuits in magnificent style. He was flying the whole afternoon, his landings being wonderfully good, and demonstrated the fine gliding angle of the new machine. The Viking should prove an exceptionally comfortable passenger carrier, for in addition to the almost luxurious cock-pit, Mr. Barber found very little wind pressure on his face, the torpedo front almost completely protecting him from the rush of air.

Ridley-Prentice was also flying the Valkyrie monoplane on and off during the afternoon, but the thick fog prohibited a greater altitude than 300 feet. His flights included numerous *vol planés* in order to keep in sight of terra firma. The fog proved very embarrassing, and Ridley-Prentice deemed it advisable to keep a course outside the boundaries of the aerodrome to avoid flying too close to any other machines.

On Saturday, in spite of fog, conditions were fairly good in the afternoon, and Mr. Barber made a trial flight on the school Valkyrie. He flew several circuits, terminating with a faultless glide in front of the hangars. Lieut. Hawker then mounted the same machine and put in an hour's good practice before dark, making excellent straight flights over the whole length of the aerodrome.

**Blériot School.**—The first days of last week the weather did not allow any of the pupils to get into the air. On Thursday, Friday, and Saturday, however, the weather was sufficiently calm to allow good work to be done, all the pupils then making excellent practice.

Messrs. Allen, Parr, and Desoutter practised *vol planés* from a height of about 300 ft., and landed in true professional style. Messrs. Pothet, Welburn and Clappen did good straight lines, and soon hope to catch up to the others.

M. Salmét, the school instructor, put up some of his excellently-made figures of 8 in order to show the pupils the ease in which right and left-hand turns can be made on a Blériot, which he further demonstrated by making two figures of 8 in a quite small space at a height of only about 15 or 18 ft. on his 50-h.p. Gnome Blériot.

**W. H. Ewen School.**—Great progress has been made during the past week. Taking advantage of every favourable opportunity the school pupils have been much in evidence. Mon. E. Baumann is now able to make splendid straights on the Blériot with the tail up. On Thursday, W. T. Warren made several good flights at heights of 30 and 50 ft., each time his landings being excellent. He is now able to fly the machine steadily at a regular height con-



tinuously. This is a feature which ought to have more attention in the training of pupils.

On Friday, Ewen had the "28 Dep." out, which has been fitted with a new cylinder, and, notwithstanding the fog, made a very good flight over the surrounding country, at a height of 400 ft., finishing with a beautiful *vol plané* right up to the sheds. Lawford, a new pupil, had his first rolling practice on Saturday, when he showed great aptitude, making a straight line at his first try.

On Sunday the pupils had the aerodrome to themselves, and every advantage was taken of the opportunity throughout the whole day. Lawford and Baumann greatly improved in their rolling, both doing straight lines with the tail nicely up. Mon. Dubois excelled himself in making a very fine straight flight, this being only his third lesson. In the evening the wind increased to 10-14 miles, in which W. T. Warren made two flights showing perfect control of the Blériot.

## Salisbury Plain.

**Air Battalion.**—In spite of the fog which hung over the ground on Wednesday of last week, a fair amount of flying was put in, Lieut. Manisty being first out on the Bristol extension biplane, Lieut. Barrington-Kennett, on a similar machine, flying at a height of 1,000 feet. Capt. Fulton, Lieut. Reynolds and Lieut. Conner were also flying Bristols, and several times disappeared from sight in the fog. On Thursday the weather was fine and plenty of flying was witnessed by Capt. Fulton, Lieut. Barrington-Kennett and Lieut. Reynolds on their Bristol machines. Lieut. Conner was also up on the Blériot two-seater, while Lieut. Hynds took Lieut. Barrington-Kennett for a trip on the Breguet biplane. Mr. Cockburn had out his new biplane, on which Capt. Fulton also made a short flight. The new Deperdussin monoplane, fitted with six-cylinder Anzani engine arrived during the day, and work was at once commenced on

its erection. Friday was fine, Lieut. Fox getting into the air early on a Bristol biplane. The morning was taken up with the erection of Capt. Fulton's Deperdussin, which made a satisfactory trial flight with Mr. Bell at the helm later in the day. Lieut. Reynolds' two-seater Bristol monoplane fitted with a 50-h.p. Gnome engine has also arrived. Lieut. Hynds on the Breguet took Lieut. Barrington-Kennett for a sprint round the Mortimer Singer course. Lieut. Conner did some rolling on his Blériot monoplane and Capt. Fulton and Lieut. Reynolds were using Bristols. No flying was possible on Saturday owing to the weather, but there was plenty to do in the hangars. Sunday, although the wind was very treacherous, Lieut. Barrington-Kennett put up a good flight on the Bristol biplane. Bad weather precluded any flying on Monday or Tuesday.

**Bristol School.**—On Tuesday, last week, it was somewhat windy and *remous* were plentiful. Jullerot made a trial circuit, followed by Lieut. Bower. Bendall made two short flights, and Fleming made one circuit on No. 66, taking Lieut. Murray as passenger.

There was no flying next morning, but after lunch Fleming made a trial and then took Lieut. Murray, who afterwards made a good solo as did Lieut. Ashton. These two officers each made two solos and are progressing very rapidly. Fleming took Lieut. Brodigan, allowing him complete control of the levers. Mr. Smith-Barry made a very impressive flight, followed by Bendall, who did two solos in good style. Jullerot rounded off the day's work by taking Lieut. Marks for two flights.

Fleming made a trial on Friday, afterwards carrying Lieuts. Ashton, Brodigan and Murray. In the afternoon, Fleming took Lieut. Brodigan, after having tested an army biplane for Lieut. Fox, prior to that officer flying it. Lieuts. Ashton and Murray made several flights during the day, and Bendall made a good circuit. Prier made a fine flight on the military monoplane.

## AIR EDDIES.

GORDON BELL, who, as I mentioned recently, has joined the R.E.P. organisation in France in the capacity of demonstrator, seems to find himself quite at home on his new mount. Just lately, on one of the European circuit type R.E.P. monoplanes, he has been carrying out long cross-country flights from Buc, passing over Saint Cyr, Villacoublay, and Versailles. A young English pupil, E. B. C. Scholefield, who is only in his seventeenth year, is studying under him, and, according to his tutor, should not be very long obtaining his certificate.

Friday of last week saw the trying out of Mr. Barber's new biplane "Viking I" at Hendon. The accuracy with which the original designs were prepared, and the carefulness with which they were followed at the hands of the Aeronautical Syndicate Works, is well demonstrated by the fact that not a single adjustment had to be made. Altogether Mr. Barber had his biplane in the air for about an hour, at times mounting to over 400 feet. At the same time Mr. Ridley Prentice, the manager of the Syndicate was carrying out a series of practice flights on the firm's light Green-engined machine, the difference between the speeds of the two machines being most marked.

Talking with Mr. Barber a few days ago, I learned that although the machine shows a speed of something in excess of 55 miles per hour, curiously enough, the rush of air seemed to him much less than he would have expected had he been travelling in his motor car at one-third of that speed. His own explanation of this singular feature is that not only does the scuttle front afford some degree of protection, but that the two tractors suck in the air, and so leave a constant partial vacuum in the neighbourhood of the pilot's seat.

The action of the balancers, too, has altogether exceeded his anticipations, for on one occasion he unintentionally flew the whole length of the aerodrome in a straight line with the machine banked considerably, wondering the while what was happening. Finally he noticed that he had failed to return the balancers to their normal position, and, making the necessary adjustments, the biplane continued on a dead level keel. As he did not bring the vertical rudder into play the whole time, it certainly seems as though he has devised a balancing system which, in its operation, does not disturb the symmetrical distribution of head resistance.

Rumour has it that in all probability Huntingdon will soon have seen the last of its flying at the Portholme Aerodrome, for a report has been spread that the exploiters of that flying ground have decided not to renew their lease after its expiration in March.

Lieut. Walter Lawrence, of the 7th Essex Regiment, who was recently reported in the daily press as intending to cross the Channel with Miss Lottie Payne, one of the nuns appearing in "The Miracle" at Olympia, as passenger, has been for the past week at Filey, where he has been gaining experience on the Blackburn monoplane. By the time these lines appear in print he expects to be settled at Shoreham with one of the Blackburn school machines, which the firm has, in a very sportsmanlike manner, placed at his disposal, until he obtains delivery of the Blackburn two-seater for which he has placed an order.

I hear that the British and Colonial Aeroplane Co., Ltd., undoubtedly the strongest and most enterprising British firm engaged in aeroplane construction, has registered at Somerset House its increase of capital from £50,000 to £100,000. The whole of this additional capital has been subscribed and paid up by the existing shareholders, Sir George White, Bart., Mr. Samuel White and Mr. G. Stanley White. Thus, with double its original capital at its disposal, the works which during the past twelve months have turned out nearly a hundred machines, will be enabled to treble their output.

Many are the notable people who from time to time avail themselves of the opportunity of experiencing the delights of airship voyages in Germany. On Wednesday of last week, Lady Eleanor G. Shelley, a sister of the late Hon. C. S. Rolls, made a trip in "Parseval VI," accompanied by her husband, Sir John Shelley, from Johannisthal to Berlin and back, a distance of 34 miles, in one hour and a quarter. This dirigible is the largest of the fine fleet owned by the Parseval Co., and during suitable weather makes a daily return trip to Berlin with its crew of four and its complement of twenty passengers. An incident during the voyage of Lady Shelley was the passing of the Siemens-Suckert dirigible, which had returned from a similar trip to the German metropolis.

Highly original was the plan adopted by Lieut. Parke, R.N., to keep his Viale-Avro on a horizontal keel during his flight in a dense fog from Brooklands to Abingdon as recorded in the Weybridge notes this week. Not having a clinometer with him, and being out of sight of *terra firma*, he at first had no means of determining whether he was flying level until he hit on the plan of adjusting his elevator so that the needle of his revolution indicator remained constant at a certain engine speed. I hear that Sidney V. Sippe, who won his credentials last week, intends to pilot the machine back to Brooklands.

"OISEAU BLEU."

# BRITISH NOTES OF THE WEEK.

## No Aero Show at Olympia.

ALTHOUGH it has been an open secret for some time, we now learn officially from the Society of Motor Manufacturers and Traders that it has been decided not to hold an Aero show at Olympia in March next.

## Aerial Defence in Australia.

IN connection with the new scheme of land defence for Australia the Commonwealth Government is organising a School of Aviation and requires trained aviators to serve as instructors. British-built biplanes as well as British-built monoplanes are also to be acquired. Full official particulars appear in the Royal Aero Club notices on p. 57.

## The Aeronautical Society to Move.

AFTER February 8th next, the offices of the Aeronautical Society of Great Britain will be situated at Albion Chambers, 11, Adam Street, Adelphi, W.C.

## Both British Army Aeroplanes Out.

ON Friday last the two aeroplanes built in the Army Aircraft Factory at Aldershot were flying, Mr. de Havilland being at the helm of the "silent" machine, while the other was piloted by Lieut. Fox. Both solo and passenger flights were made, one of the passengers being Capt. Lefroy, chief of the wireless telegraph station, who was doubtless obtaining information regarding the proposal to fit up the machines with wireless apparatus.

## Mr. Cody Tries his 'Bus.

WHILE the army flyers were out on Friday Mr. Cody was also trying his big biplane now fitted with five seats. Only two passengers were carried, but at the first favourable moment Mr. Cody proposes to take a family party of four to Brooklands.

## Flight From a Battleship.

IN our last issue we were able briefly to refer to the fine flight made by Lieut. Samson from the deck of the British battleship "Africa," but were unable to give any details. Shortly after midday on Wednesday of last week, when a mist which had been overhanging the Royal Aero Club's Ground at Eastchurch lifted, the naval aviator mounted a Short biplane and made his way across the Medway and landed on the Cockleshell Hard on the Grange Shore. There a party of bluejackets took charge of the machine and placed it on a coal lighter which was then towed by a pinnace to H.M.S. Africa. By the aid of the battleship's derrick, the aeroplane was lifted on to a staging of planks which had been built over the fore part of the ship, and at twenty minutes past two Lieut. Samson gave the word to let go, the machine ran down the ship and rising at once, was steered first over the destroyer "Cherwell" and then round the masts of the "Africa," this manoeuvre being loudly cheered by the assembled crews. Steadily rising, Lieut. Samson then followed the Medway for some distance to West Minster, and then turned inland for Sheerness where he arrived safely.

## A Monoplane over Sheerness Harbour.

MR. J. VALENTINE made a very fine flight on his Deperdussin monoplane over Sheerness Harbour on Saturday afternoon last. His course was along the Swale and round by Queenborough to Sheerness, where he circled round the battleship "Africa" and cruiser "Berwick" in the harbour. He then made for Eastchurch, rising on the way to an altitude of 3,000 feet, from which height he *vol planed* down into the Royal Aero Club's ground. He intended to fly to Brooklands, but it became dark too soon.

## Lieut. Spencer Grey's Mishap.

AFTER giving a splendid display with his Blackburn monoplane, Lieut. Spencer Grey fell a victim to the dangerous over-curious crowd last week. On the 10th inst. he made a flight, in somewhat unfavourable weather, for the benefit of some naval officers, but on returning found a crowd had invaded his landing place. In endeavouring to avoid them the machine was caught by a side-gust of wind, and the pilot pitched out. The machine was badly damaged, while the pilot sustained a dislocated arm, which will probably keep him on *terra firma* for a month.

## Mr. Fowler Back at Eastbourne.

UNDETERRED by his involuntary dip in the Solent, Mr. F. B. Fowler was back at Eastbourne last week, and made several flights on his Blériot machine. The ignition trouble having been overcome, he completed the tests for his *brevet* on Saturday last.

## New Zealand Club Wants Catalogues.

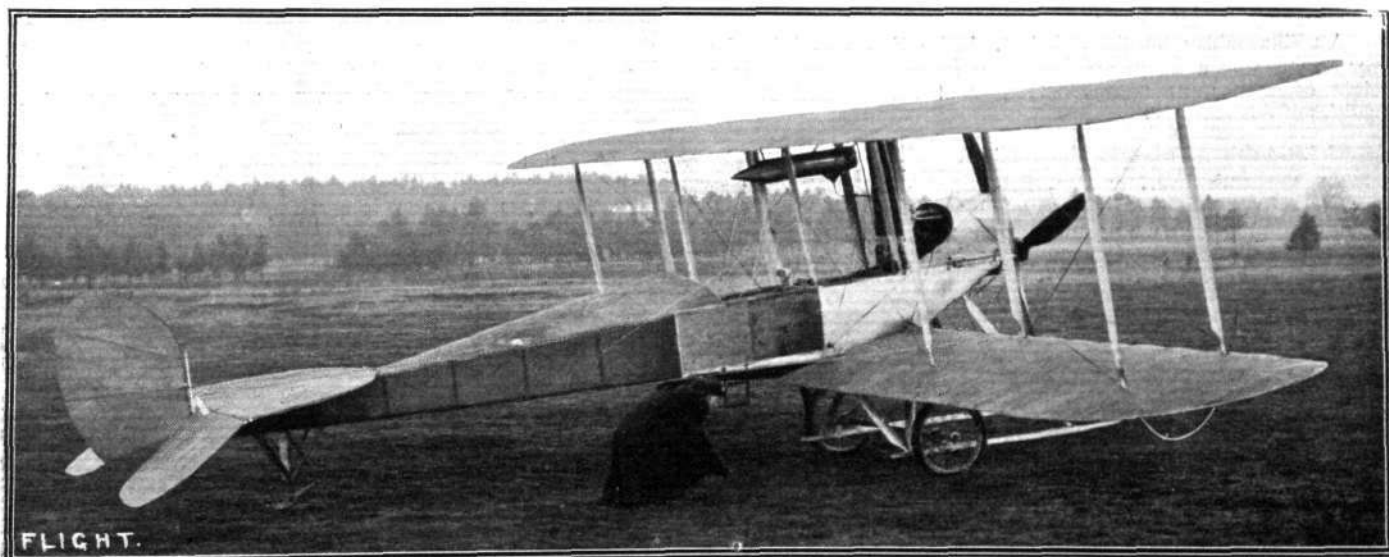
THE Dunedin Aero Club, which has been formed for the purpose of banding together a number of New Zealand model aeroplane makers and flyers, would be glad to receive catalogues from any of the British model or accessory firms who would care to send them. The secretary is Mr. Bernard Hughes, 603, Cargill Road, Caversham, Dunedin, New Zealand.

## Naval War Game and Aviation.

IN most naval colleges throughout the world, the "Jane Naval War Game" is used, and it is interesting to note that in the new book of rules considerable space is devoted to aerial operations. Practically every possibility is allowed for, under three main heads, Scouting, Bomb-dropping, and Actions between aircraft. In the last book of rules, published in 1902, half a column was devoted to balloons, airships, &c., and this was criticised as "unduly imaginative." Now there are about four pages of aerial regulations, and air flights in miniature are likely to be plentiful during the year.

## Messrs. Mann and Grimmer.

IN order to prevent any misunderstanding, Messrs. Mann and Grimmer ask us to state that 15, Arlington Road, Surbiton, is simply the address of their office, and that the works are situated elsewhere.



The new product of the Army Aircraft Factory at Farnborough, a decided advance on the previous machine as constructed by that body.

# FOREIGN AVIATION NEWS.

## More Nieuports for Russia.

ON the 9th inst., at Mourmelon, before some Russian military officers, Helen and Espanet put six two-seated 50-h.p. Nieuports through their paces before delivery. Gliding, landing, and rising tests were carried out successfully, and during the last-mentioned test the machines rose at the rate of 300 metres in four minutes with a useful load of 215 kilograms.

## Vedrine's at Practice.

By way of practice and tuning-up his Deperdussin machine, in view of his attack on the speed records, Vedrine was flying for a couple of hours on the 9th inst., and also on the 11th he made several rounds of the course at a very high speed, according to unofficial timing 142 k.p.h. On the 13th he was busy carrying passengers, and during the morning took up no less than thirty-five.

## Which Army are they For?

ON the 10th inst., Prevost at Issy was testing a couple of military Deperdussins which it was stated had been ordered by a foreign Government, although the name could not be given. They easily climbed 500 metres in eight minutes and Prevost afterwards carried a passenger over Paris on one of them.

## Another Quartette of M. Farman's for French Army.

ON the 10th inst., Lieuts. Battini, Lucca, Binda, and Leclerc attended at the Maurice Farman Works at Buc, to take delivery of four more Maurice Farman machines. After having obtained his machine, each officer flew it back *par la voie des airs* to the military aerodrome at St. Cyr.

## At the Blériot Military School at Pau.

ON the 10th inst., Capt. Casse was flying for an hour and a half on his Blériot-Gnome at the Blériot Military School at Pau, and Lieut. Malherbe flew over to see a meet of the hounds at Ger. Afterwards he accompanied Capt. Bellenger on a two-seated Blériot for a jaunt along the valley of the Gave, and E. Giraud went from Pau to Dax and back covering the distance of about 100 kilometres in an hour. On the 11th inst., Lieut. Malherbe went from Pau to Puyoo and back, while Deneau returned from Tarbes.

## A Tellier at St. Omer.

FLYING one of the old Tellier machines fitted with a Chenu motor, Marc Pourpe was up for over an hour on the 10th inst., at the Bruyeres Aerodrome at St. Omer and was also up on the next day.

## Vidart at Amberieu.

ON the 10th inst. Vidart who is in charge of the Deperdussin School at Amberieu, was flying there for over four hours, during which he flew over the villages of Douvres, Ambronay, Jujurieux and Pont d'Ain. He also flew over Amberieu, circling round the Clock Tower eight times and concluded his performance by a flight in the twilight.

## Frey Flying for an Hour.

AT Villacoublay on the 11th inst. Andre Frey was flying for over an hour on a Gnome-Morane, and in coming down from a height of a thousand metres demonstrated the splendid gliding qualities of this machine.

## Brindejonc des Moulinais Flies High.

ON the 12th inst., at Pau, Brindejonc des Moulinais was practising high flying on his Morane-Saulnier monoplane, and succeeded in getting up to a height of 2,200 metres, while on Sunday he improved on this by climbing up to 3,150 metres, which is getting close to the record.

## A Deperdussin at Nice.

ON the 12th inst. a Deperdussin monoplane, piloted by Laurens, was seen flying over the Bay of Anges at Nice, and after passing along the jetty and turning above the promenade he returned to the California Aerodrome.

## A Collision at Issy.

AFTER making his tests for his certificate on a biplane, Rugere was involved in a rare accident at Issy on Sunday. Rugere started his biplane at practically the same time as Hanouille set out on a monoplane. After they had progressed some distance along the ground the monoplane turned towards the path of the other machine, the pilot of which immediately endeavoured to rise so as to avoid

complications. He was, however, too late, and one of the wheels of the biplane caught the monoplane, and caused it to turn over. M. Hanouille was thrown out and seriously injured, but Rugere escaped practically unhurt.

## Fatal Accident to Ruchonnet.

FOR some time Eugene Ruchonnet, who learnt to fly an Antoinette nearly two years ago, has been practising at the La Vidamee aerodrome, near Sentis, with a machine of his own construction, which was known locally as the "Ruchonnet Cigar." He made many successful flights on the 12th inst., and in the afternoon after flying around the aerodrome several times started off at a good speed for a cross-country trip. Soon after leaving the aerodrome, however, the machine commenced to come down despite all efforts of the pilot to make it rise, and from a height of 80 metres it fell to the ground at St. Nicholas. The pilot was crushed beneath the machine, and although a doctor arrived almost immediately the unfortunate man was already dead.

## Death of Le Lasseur de Ranzay.

THAT aviators are but mortal and subject to the ills that flesh is heir to was once again mournfully emphasized on the 10th inst., with the passing of Le Lasseur de Ranzay. This well known Blériot pilot had volunteered for service with the Italian Army at Tripoli; but while making his preparations at Florence was struck down by typhoid fever, which was the cause of his death. He took part in the Paris-Madrid race, the Circuit European, and won the Spanish race from Valencia to Alicante and back, while it will be fresh in the memory of our readers that he was successful recently in flying across the Apennines.

## Toulon Aviation Meeting Profits.

AS a result of the Toulon Aviation Meet, a sum of 3,087 francs has been raised for the benefit of the dependents of the victims of the Liberté disaster. It is proposed to arrange another meeting for the benefit of this fund, and incidentally it is hoped that it will result in the founding of a permanent aerodrome at Toulon.

## The Michelin Target Prizes.

THE Aero Club of France has fixed Sunday, February 4th, and Sunday, February 11th, as the dates for first contests for the Michelin Target prizes, which are to take place at Chalons Camp. Entries for the first date close on January 29th, and for the second test on February 5th.

## Busson at a Fox Hunt.

IT is becoming quite popular with the aviators at Pau to attend the meets of the hounds, and on Saturday last Busson on his Deperdussin monoplane followed the Pau foxhounds for three-quarters of an hour, and from a height of 600 ft. witnessed every incident of the chase of Master Reynard.

## British Officers at Buc.

ON Monday, Col. W. E. Fairholme, British Military Attache, and Capt. Brooke-Popham, paid a visit to the R.E.P. works at Buc, being shown round by Commandant Voyer. Unfortunately the fog prevented any flying, but the British officers spent a long time studying the design and construction of the R.E.P. machines.

## French Army has Ten more H. Farman's.

A FRENCH Military Commission attended at Mourmelon on Monday last in order to witness tests with ten military Henry Farman machines, delivery of which was afterwards accepted. One of them fitted with a 70-h.p. engine and piloted by Fischer, with a full load and one passenger rose to a height of 1,000 metres in 13 minutes.

## Another French Superior Certificate Won.

ON his Deperdussin monoplane, Lieut. Boncour successfully made the third cross-country flight for his superior military certificate on Monday, flying over a course from Rheims to Vitry-le-François and back.

## Hydro-Aeroplanes at Monaco.

OWING to there being no suitable landing place, it is practically impossible for much flying to be done at Monaco, except over the sea, and a fillip should be given to the hydro-aeroplane movement by the three prizes, aggregating 15,000 francs, offered by the International Sporting Club for a competition to be held there during the last week in March. The contest will comprise six tests—(a) starting from calm water and going round a course of 4½ kiloms. in the bay;



(b) resting on calm water; (c) starting from broken water; (d) resting on broken water; (e) landing on the seashore so that the pilot may descend; and (f) starting from the seashore. Each event will be carried out each day, and the award will be by points—(a) and (b) counting one each, (d) two points, (c) three points, and (e) and (f) four points. In addition to the prizes, an indemnity of 2,000 francs will be given to each competitor not classed. It is stated that Paulhan will compete with a Curtiss machine, Colliex on the Voisin, and Renaux on the Farman.

#### The Brussels Exhibition.

THE eleventh Motor Show, which opened in the Cinquante-naire Palace on Saturday last is not devoted entirely to motor cars, as on one side of the gallery are a number of aeronautical exhibits, including a flapping-flight machine by Count de la Hault, while the "decorations" include a Deperdussin racing machine, as well as another monoplane, which was suspended in the centre of the hall.

#### Touring in Belgium.

ON the 12th inst., Crombez on a Deperdussin monoplane, made the first part of an aerial tour of Belgium by flying across the French frontier from Douai to Tournai. He covered 38 kiloms. in 35 minutes, landing on the Military Parade Ground at Tournai. Afterwards he made several flights above the town.

#### Berlin Aero Show.

PRINCE HENRY OF PRUSSIA has consented to extend his patronage to the International Aeronautical Exhibition, which is to be held at Berlin on April 3rd to the 14th next.

#### German Aviatress to Open School.

FRAULEIN MELLI BEESE, who has made over 100 flights on a Rumpler monoplane without having the slightest accident, has announced her intention of opening a school of aviation at Johannisthal.

#### The Schleswig-Holstein Circuit.

THE estimated expenses of this competition have already been guaranteed, and the organisation is being proceeded with. The date chosen is June 16th to July 2nd, the prizes including the North German Grand Prize of 30,000 marks, a prize of 5,000 marks for the aviator who lands at a certain spot to be determined later with passenger, while Flensburg and Heide are putting up a prize of 8,000 marks.

#### A Mishap at Johannisthal.

ONE of the pupils at the Johannisthal Aerodrome, Lieut. Keske, was injured seriously in a curious manner on the 9th inst. A very high wind was blowing, and as Lieut. Keske was passing one of the hangars the heavy door was blown down on him. He was rendered unconscious, but medical aid was quickly at hand, and it is hoped that he will soon be little the worse for his adventure.

#### A German-Austrian Event.

THE Society of German Aviators is in negotiation with the Austrian Aero Club regarding a proposal to have a race between Berlin and Vienna, calling at Breslau. It is proposed that the contest should be held between June 14th and 25th, and that each competitor should carry a passenger.

#### A Swiss Hydro-Aeroplane.

DURING the winter the Swiss aviator Taddeoli has been giving his attention to the designing of a hydro-aeroplane which is now



IN SOUTH AFRICA—WAITING TO SNAP.—The crowd at Kenilworth Racecourse watching the approach of Compton-Paterson on his biplane.

nearing construction and it is to be experimented with during the springtime over Lake Geneva.

#### Bristol Aeroplanes in Spain.

PIXTON AND BUSTEED have been carrying out a fine series of exhibition flights on "Bristol" biplanes and monoplanes from the aerodrome outside Madrid, these being the first British-built aeroplanes to be flown in Spain. The King of Spain, members of the Government and numerous army officers have been interested spectators, and His Majesty was greatly impressed by the qualities of the machines and asked several questions regarding them. A number of staff officers have been taken for flights and have expressed their admiration of the speed and stability of the machines, and the strength of their construction, which permitted them to rise from and alight on newly ploughed fields with perfect ease and security. During the past ten days, a number of flights have been made over the outskirts of Madrid to the great delight of the populace, to whom these "Bristol" aeroplanes come as quite a revelation of modern flying.

#### A Gliding Club in Copenhagen.

THE photo at the foot of this page illustrates some of the work of the Copenhagen Aeronautic and Gliding Club or Dansk [aeronautisk Amatør-Forening] to give it its proper name.

For a fee of one shilling a month the club places at the disposal of members tools of every description, club-house, library; and if desired members are taught gliding on the French aeroplanes—rebuilt as gliders. The club is anxious to correspond with some English clubs.

#### Aeroplanes as Contraband of War.

KNOWING the value that aeroplanes have been to them, the Italian military authorities are naturally anxious that the Turkish forces shall not secure equal advantages if it can be helped. According to a message from Tunis, a French steamer has been seized by Italian gunboats, and a biplane on board belonging to M. Duval, as well as another machine belonging to M. Obre, also on the same ship, have been declared contraband of war. Protest has, however, been lodged by the two aviators, who affirm that the machines were for an aviation meeting which is to be held in Tunis.



The hangar and machines of the Copenhagen Amateur Glider Club, whose grounds are situated just outside the city.

## FLYING AT OVER NINETY MILES AN HOUR.

FOR some time the speed records have stood unattacked and, in fact, in view of the speed set up by the late Ed. Nieuport, it was hardly expected that they would be very much improved on for some time to come. Vedrines has, however, had his eye on them, and so have the Deperdussin folk, and the scanty reports which leaked out at Pau regarding the practice showed that the combination was likely to prove successful. And so it proved. With a machine of 7 metres span and 13 sq. metres surface, fitted with a 100-h.p. Gnome engine and a "Rapid" propeller of 2.5 metres diameter and 2.1 metres pitch, Vedrines made a successful attack on Saturday last. A course of 5 kiloms. round had been laid out, and it was seen as soon as the timekeeper, M. Maurice Martin gave out the time for the first round, that Nieuport's old records were going to be well beaten. In the first 5 kiloms. Vedrines had knocked 2 secs. off the old record and he did even better in the next round, by the end of which he was 5 secs. to the good.

The following table shows both the new and old records for 5 kiloms. to 150 kiloms., and also from a  $\frac{1}{4}$  of an hour to 1 hour. His highest speed reported was 145.177 kiloms. per hour, a speed of just over 90 miles an hour as against Nieuport's 82½ miles an hour. This latest success of Vedrines added to the many others which have been won by the Deperdussin firm during the year is another testimony to the splendid design and excellent work of these craft.

### Speed Records by Distance.

		Vedrines.				Nieuport.		
		h.	m.	s.		h.	m.	s.
5 kiloms.	...	0	2	6½	...	0	2	18½
10 "	...	0	4	13½	...	0	4	18½
20 "	...	0	8	26½	...	0	9	14½
30 "	...	0	12	40½	...	0	13	33½
40 "	...	0	16	53	...	0	18	31½
50 "	...	0	24	4	...	0	23	10
100 "	...	0	41	56½	...	0	46	27½
150 "	...	1	2	43½	...	1	13	35

### Speed Records by Time.

			Leblanc.
$\frac{1}{4}$ hour	...	35 kiloms.	30 kiloms.
$\frac{1}{2}$ "	...	70 "	60 "
1 "	...	142.430 kils.	Nieuport. 129 kiloms.

### Highest Speed.

New record, Vedrines	...	145.177 k.p.h. (92 m.p.h.).
Old record, Nieuport	...	133.136 k.p.h. (82½ m.p.h.).

## AUSTRALIA'S OWN AVIATOR.

A FEW particulars are just to hand of the fine cross-country flight made by Mr. W. E. Hart on November 18th from Penrith to Sydney. Mr. Hart is the first Australian to go through the tests in his native land necessary to qualify for a certificate of the Aero Club, the tests being observed by Lieut. Taylor, Major Rosenthal, Captain Stowe and Captain Vernon of the Aerial League of Australia. They were made at Penrith on a Bristol biplane, and during the last test Mr. Hart carried as passenger Master Rosenthal. On his first circular flight Mr. Hart took his brother for a trip to their home at Parramatta covering the distance of nineteen miles in as many minutes.

In the flight from Penrith to Sydney, Mr. Hart covered the 47 miles in 55 minutes, and rose to a height of 6,000 ft. The landing was a difficult one, as, apart from the fact that the Royal Agricultural Society's show ground is small, the approach to it was impeded by flag-poles and scoring-boards. Cleverly dodging these, however, and veritably "jumping" over the scoring-board, Mr. Hart landed safely.

Three days later the aviator again took the air, and after a flight over the suburbs of Sydney, made another successful descent into the grounds.

Mr. Hart has arranged to fly from Sydney to Melbourne if the assistance of the intervening towns can be obtained, and it is hoped the Government will take up the subject. Exhibition flights will also probably be given in Brisbane and Tasmania, after which schools will be opened in

Sydney and Melbourne, the machine for the latter being built by Mr. Hart and his staff in Australia.



W. E. Hart, the Australian aviator who recently made a flight of 47 miles from Penrith to Sydney, accomplishing the distance in 55 mins.

### M. Dubonnet Beats the Balloon Record.

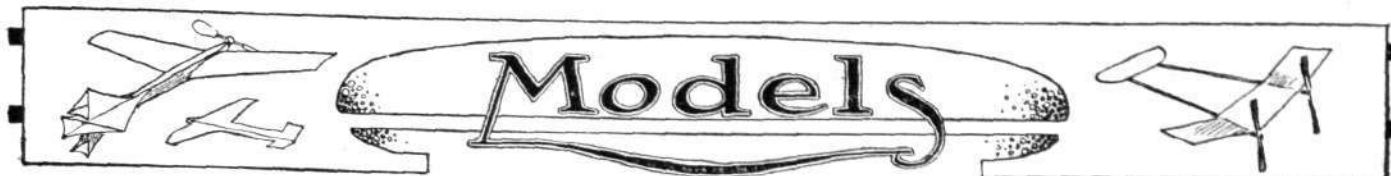
AT last Count de la Vaulx's balloon distance record of 1,935 kilometres which has stood since 1900, has been beaten and over practically the same course. The successful aeronauts were M. E. Dubonnet, the first exponent of the Tellier monoplane, and M. Dupont. The start was made from Lamotte-Breuil, on January 6th, shortly after midnight and when a storm was raging. After a voyage of 30 hours, the latter part of which was through showers of blinding snow the aeronauts came down and found themselves about 11 versts to the east of Sokolowska, in the province of Kieff, and they had, therefore, broken the record by 50 kilometres. Naturally, the aeronauts had an exciting time during their voyage, and when crossing the Carpathians at a height of about 10,000 feet, the temperature was 12 degrees below zero. After passing Kieff in the distance, preparations were made for landing as the wind had practically dropped. M. Dubonnet pulled the ripping cord and in a few minutes the great balloon was lying on the frozen ground. In order to keep themselves warm the voyagers ran about for some time and then set off to try and find some human habitation. After tramping for nearly an hour in a haphazard way, as they had nothing to direct them, they came to a hut occupied by an old man, two children and a couple of ponies. The man, how-

ever, did not seem to know any language, but by signs the aeronauts learnt that they were about 12 versts from a railway station. They slept on a table in the hut overnight and the next morning were taken by the old man in his sledge to Monastyrystche where they were able to get a train for Warsaw. Every consideration was shown them at Warsaw, and with all possible speed they hastened home and were given a rousing welcome on their arrival in Paris, by a deputation of members of the Aero Club of France. The balloon "Condor III" was abandoned after the instruments, &c., had been taken out; but Dubonnet hopes to re-visit his landing place in the spring.

### A Lengthy Balloon Voyage from Germany.

GERMANY has also been responsible for a long balloon voyage, as some days ago Messrs. Beurmann and Otto Korn of the Saxony Aero Club set out from Dresden. At first they were driven in the direction of Roumania, but when near Breslau the wind changed and carried them eastwards across the Vistula near Cracow. Eventually the balloon came down near Chapino in the Province of Ekaterinoslav, about 1,600 kilometres (993 miles), which had been covered in about forty hours. They could have kept on for an hour or an hour and a half more, but feared they would have been carried to some out of the way spot.





Conducted by V. E. JOHNSON, M.A.

"If a model were designed for twin propellers with a pitch of 2 ft., but when bent they are found to have a pitch of 22 and 26 ft., say which of the two would have the most power and make the model circle."

Such is the pretty little problem sent us this week by a correspondent. When we consider that the propeller is of bent wood and therefore not of uniform pitch, that it is moving axially through the air, and therefore that it is the dynamic and not the static thrust that is required, and that we must know the respective speeds of rotation of the propeller blades, and the deformation, if any, of the same while in flight, &c., &c., the problem certainly appears a somewhat unprofitable task from the theoretical point of view. Two of the chief factors in determining the thrust are the number of revolutions per minute and the pitch of the propeller, whose product appears in the equation, one becoming larger as the other grows less.

Turning now to the more practical solution of the problem, we might take what is known as a "variable-pitch" propeller, fitted with a hub and adjusting screws, and setting the blades at the correct angles to give the stated pitch; determine the actual thrust given in the two cases. This solution is useless, however, for more than one reason: one of which is that the type of propeller is different, as our correspondent specifies that it is to be of bent wood. One method remains—that of making two propellers of the same diameter and of 22 in. and 26 in. pitch respectively, and of testing them in actual flight, interchanging the propellers after the first experiment, in which case the model should, of course, circle in the opposite direction.

Let us take a 9-in. propeller, and find the difference between the tip-angles using the formula:  $\text{Pitch} = 2\pi r \tan \alpha$ . We find that in the case of a 22-in. pitch  $\alpha = 37^\circ 52'$ , and in the case of the 26-in. pitch  $\alpha = 40^\circ 33'$ . Difference is therefore  $40^\circ 41'$ . It is not easy to measure accurately the tip-angle of a bent wood propeller of cambered surface, but in this case the angular difference should certainly be sufficient. As the diameter is increased this difference, of course, grows less.

Will any reader who may have had practical experience with a case similar to the above kindly send results?

#### "Propeller-Pitch and Length of Flight."

In response to a request of ours, Mr. C. C. Allport, of the Conisborough and District Aero Society, kindly sent us one of his propellers for inspection; the propeller being one of those fitted to his 7-oz. models, which, as recently notified in FLIGHT, flew an estimated distance of 3,000 ft. On calculating out the theoretical distance, allowing 20 per cent. slip, we have 2,240 ft. The model is stated to have flown in a calm, and as Mr. Allport has pointed out since the model flew in an approximately elliptical course, even if started with wind, the latter part of its flight must have been accomplished against it. There is, therefore, in this case, considerable discrepancy between the two results. As it so happens, we have received this week a letter from Mr. R. P. Grimmer, giving us certain details about the well-known Mann monoplane (see illustration). The chief details are: Length, 36 ins.; main plane, 20 ins. by 5 ins.; propellers, 9 ins. diam.; pitch, 34 ins.; slip, approx., 20 per cent.; total weight, just over 5 ozs.; weight of rubber, about  $1\frac{1}{2}$  ozs.; number of turns obtained on each motor, about 1,000; propeller runs 600 revolutions per minute; best flight in calm air, 750 yards. Referring to last-named fact, the pitch and 20 per cent. slip, 1,000 turns give theoretically a distance in entire agreement with results actually obtained.

We shall be glad to hear from any of our readers results obtained (in calm air) with respect to theoretically possible distances, and lengths of flights actually obtained. To be thoroughly reliable these latter should be straight flights.

#### To Determine the Pitch of a Propeller.

Referring to the method given in the issue of December 16th we omitted to state that it was applicable only when the pitch was small. Supposing we have a 9-in. propeller with a tip angle say of  $50^\circ$ , first draw to any desired scale a line equal to  $2\pi r$ , that is to the path traced out by the tip during one revolution, which in this case is  $2\pi \times 9$ , that is  $28\frac{1}{2}$  in. Call this line AB. From A draw a line AC making an angle of  $50^\circ$  with AB, and from B draw a straight line vertically upwards to meet AC in C. BC is the pitch. This is obviously the case; take a full-size drawing. If we wrap the paper on which figure is drawn round a cylinder 9 in. in

diameter, point C will come vertically above point A and will therefore represent the distance between two consecutive threads.

If  $P$  = pitch we have by Trigonometry  $P = 2\pi r \tan \alpha$ ;  $\alpha$  being the angle, in this case  $50^\circ$ . The latter is a very convenient method if one possesses a table of Natural Tangents.

Applying these two methods to the above we find by the first method the pitch to be 33.5 inches and by second 33.66.

If  $BC = BA$  then the pitch is evidently equal to  $3\frac{1}{2}$  times the diameter. In this case  $\alpha = 45^\circ$  and  $\tan \alpha$  we know equals 1.

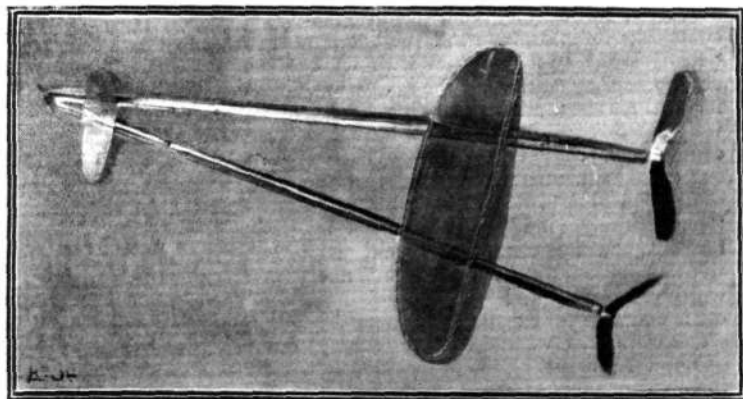
Conversely a pitch of  $2\frac{1}{2}$  times the diameter gives an angle at the tip of about  $38^\circ$ , and  $1\frac{1}{2}$  times the diameter an angle of  $25^\circ$ .

#### Notes.

We have received a long communication from Mr. R. P. Grimmer in which he takes exception to certain remarks made by us in the issue of December 23rd—re fashionable 4-oz. models. He contends that the larger models possess several important disabilities, one being that they are a danger to the general public. Mr. Grimmer states that he once had the doubtful pleasure of being hit by a heavy model in full flight, and that the impact was such as to cause him considerable damage (evidently one serious objection that can be urged against the rubber motor is that it is a *silent* one). He furthermore states that they are expensive to build and maintain, that a vast quantity of rubber is required, and that such models are therefore a severe strain on the purse of the owner unless he is wealthy, which many aeromodelists unfortunately are not. All of which is perfectly true and of which we were fully aware when we made our remarks. The fact remains, however, that there are plenty of places where they can be flown with perfect safety, just as there are many districts where they cannot. The general public is always impressed by size. We would rather not state some of the remarks that we have heard onlookers make with respect to small models, as we have no desire to hurt anyone's feelings. We know, personally, of several instances in which gentlemen were induced to become aeromodelists after they had seen a large model in actual flight. Finally, it is possible to fit on to large models very light automatic recording instruments and automatic controls by which much valuable data may be gained, which is absolutely impossible of achievement with smaller models. If model aeroplaning is to be made a complete success we must cultivate and encourage not one side but every side.

Another remark criticised by Mr. Grimmer is one made in the issue of January 6th, viz.: "No fin or rudder *per se* will make your model fly straight." He states that the models with which his name is associated (the Mann monoplane) when fitted with fins invariably fly in a straight line. It is rather a coincidence surely that in the same number of FLIGHT (Brighton and District Model Ae.C. notes) it is stated "Hervey several times did 300 yds. with 'Mann.' The machine will circle and fly out of the ground." Of course the machine may not have been fitted with a fin, or may have had it removed, which Mr. Grimmer states is always done when trying for duration, the fin being removed in order that the model may circle; but it certainly looks as if Mr. Hervey was trying to fly straight. Of course the fault may have been Mr. Hervey's.

We should scarcely have referred to the matter in this way had Mr. Grimmer not used the word "invariably," a very strong term



The 100-secs. duration "Mann" monoplane. Brighton, September 16th, 1911.



indeed. We have carried out many experiments with fins on various types of models and we adhere to our original statement; moreover, we would go much further than this and say that no model ever has or ever will be made that will invariably fly straight; nor yet, even seven times out of ten.

The only manner in which a machine can possibly be got invariably or even probably in the majority of cases to make straight flights is to have it fitted with some system of rudders automatically controlled by means of gyroscopes, even then the path would only be approximately straight—in reality being a zigzag so many feet broad. Mr. Grimmer's remarks are perfectly general in character and are not in any way limited to the model being flown with the wind.

The real reason for making the original statement *re fins* was this: if a beginner has the idea that a vertical fin will *per se* make a model fly straight then he is most likely to be careless as to the proper tuning-up of his propellers, the correct adjustment of his lateral balance, &c. Our concluding remarks (in the original statement) therefore were "try first the method we have suggested."

We have received a number of communications relative to our article in the issue of January 6th. The matter will still remain open for the next few weeks in order to give other correspondents an opportunity of sending in their views on the subject.

A correspondent writes asking if the plan form of supporting surface which we advocated in the issue of December 23rd, does not set up air eddies at the tips. Not if properly designed. Moreover, the speed of most models is insufficient to make such a very serious matter. Talking of air eddies—it may not be amiss to point out that it is the trailing as well as the entering edge which give rise to such, and that they very often are more pronounced in the case of the former than in that of the latter. For minimum resistance great attention should be paid to the trailing edge, that the air should leave it with as little shock as possible.

We have to thank Mr. G. T. R. Hill for sending us a very interesting experimental determination of the ft. lbs. of energy contained in a pound weight of rubber, which we shall be pleased to publish shortly; in the meantime, perhaps someone else may like to experiment on the same lines.

We propose, in the next three issues, considering briefly the three following motors for models:—(1) The petrol motor; (2) the CO<sub>2</sub> motor; (3) the steam motor; with respect to which we have recently both had and have ourselves been making many enquiries and some experiments.

R. LEONARDS.—Consult back numbers of FLIGHT. We are afraid you will have to put up with the bother.

## KITE AND MODEL AEROPLANE ASSOCIATION.

(27, VICTORY ROAD, WIMBLEDON.)

THE next meeting of this Association will be held at the offices of the Aeronautical Society, 53, Victoria Street, S.W., on February 1st, 1912. The chair will be taken at 8 p.m., by the President, Major B. Baden-Powell, F.R.A.S., F.R.M.S.

Mr. J. H. Ledeboer, M.A., will open a discussion on "Propelling

Plant for Model Aeroplanes," who will be followed by Messrs. T. W. K. Clarke, A.M.I.C.E., G. P. Bragg Smith, E. W. Twining, and other well-known modelists. It is hoped that all interested in model work will attend and take part in this discussion, which should be interesting and instructive.

## PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

### MODEL CLUBS.

#### Aberdeen Aero Club (387, HOLBURN STREET, ABERDEEN).

THE usual meeting of above club was held at Kincorth on Saturday afternoon, the weather was very unfavourable, and very few good flights were obtained. Mr. D. Brown, however, obtained two excellent flights, but as there was no tapeline on ground we were unable to measure same. Posts were driven into the ground at points of launching and landing, and when measured we expect these flights will be club records. Mr. Geddes and Mr. Gray turned up with models measuring 3 ft. 7 ins. and 4 ft. 1 in. respectively, but as the wind was blowing in strong gusts no satisfactory flights were got. A meeting was held at night in club-room, Holburn Street Club. Rules were proposed by the president, and agreed to by all. A copy will be sent to members in due course. It was decided to open club-room on Wednesday and Friday evenings each week, to be used as a workshop, and on Saturdays, when necessary, for business meetings. Plans for a glider were discussed, and it was decided to purchase materials for same, and commence operations at once. A musical evening and whist drive was arranged, date of which will be given later. Meeting will take place on Saturday afternoon as usual.

#### Aero-Models Assoc. (N. Branch) (15, HIGHGATE AVENUE, N.).

A VERY successful social was held at above address last Saturday when there was a strong attendance of members and some excellent models were on view. These included a 1½-h.p. 4-cylinder model petrol engine, constructed entirely by its designer, Mr. Stanger, who informed those present that it was actually the first petrol engine to fly a model with its own power. An ingenious contrivance for cutting off the ignition at any desired time is one of its chief features, and the engine, complete with accumulator, &c., weighs 8 lbs. and drives a 3-ft. propeller at 1,300 revolutions. The centre of attraction in the way of flyers was Mr. E. R. Brown's excellently constructed "Mann"-type monoplane, and also another of his own design. Mr. Murray brought along an extremely neat "get off the ground" biplane driven by a single propeller. This machine promises exceedingly well, and will be in evidence at next week's competition. Mr. Stanger's fine 3-ft. propeller was certainly worth examining, and Mr. Murray's small laminated propellers were other examples of excellent workmanship. Some really remarkable glides were made with Mr. Pidsley's Antoinette-type model glider, but one of a Nieuport, although ingeniously constructed, failed to better the performances of the Antoinette, due to under ballasting. The meeting ended up with a heated discussion between Messrs. Ross,

Stanger, Pidsley, and Hindsley over the lift and drift of planes of varying sections, and at 11.30 p.m. everyone was still holding their own, so it was decided to leave matters till a further date. Altogether, a more pleasant evening could not have been spent, and the secretary, Malcolm B. Ross, intends holding these socials periodically. Dates will be announced in FLIGHT later. To-day (Saturday) a flying meeting is to be held for distance at club's flying ground in Bishop's Avenue, East Finchley, N. (Messrs. Vivers Lodge Farm Dairy), at 3 p.m. A prize of goods to the value of 5s. has been kindly offered by Messrs. R. G. Corder and Co. No entrance fee for members or non-members. Everyone make a point of turning up (with models).

#### Bath and Somerset Aero Club (11, ELM PLACE, BATH).

SOME dozen members were able, through the kindness of Messrs. Fuller, in supplying the hon. sec. with complimentary tickets, to spend on enjoyable and instructive evening at the Assembly Rooms, Bath, where animated pictures of the building and testing of the Flanders motor car were being shown on the 5th and 6th inst. A race between a car and Blériot and Curtiss aeroplanes was depicted causing great excitement.

It is hoped that some definite arrangements will be able to be made for the building of gliders ere long. An exhibition of models is being arranged of which notice will be sent as soon as the date is settled.

#### Birmingham Aero Club (8, FREDERICK ROAD, EDGBASTON).

IN spite of the bad weather lately, the attendance at Billesley has not been so bad. Last week-end a decided improvement all round was noticed in the model flying. Mr. W. Lunn, with his new model, was making some much better flights. Mr. Prosser's rook-wing model was exceedingly slow, but always finished its flights with an excellent glide. This model shows promise of doing well in the near future. Mr. M. Vale's new model showed a good improvement on his last two machines. Excellent flights by Mr. G. Haddon Wood were being obtained, both with his Gordon Jones and his own model. Mr. A. F. McManus and Mr. Robertson were both making some very fast and high flights, the plane of Mr. Robertson's model having no camber. Mr. E. Trykle, having now lost the world's record for duration with a model, is striving to regain the lost honour, and on Wednesday last week he was successful in obtaining a flight of 95 secs. duration, the model then finishing its flight in a tree. Had it not been for this, no doubt the flight would have been several seconds longer. He will not, however, be satisfied till he obtains a flight of at least two minutes, which is quite possible with his type of model.

### Blackheath Aero Club (21, MANOR ROAD, BROCKLEY, S.E.).

At Kidbrooke on Saturday last many members and friends competed in the contests for "distance," "duration" and "steering." Mr. F. Plummer proved the winner with 49 points of a possible 50, and Mr. H. Smither was second with 39 points. Mr. Plummer's models were greatly admired for their consistent flying, and although these monoplanes weigh 8 ozs. they experience no difficulty in attaining great altitudes and long duration flights. Their stability is also excellent.

The committee would like to see a larger number of entries for the forthcoming competition on February 24th, full details of which will be published next week.

At the Lee Aerodrome Mr. H. H. Pizey gained his second class certificate with a good flight of 256 yards, and no doubt this very energetic member will be in possession of his first class "ticket" at an early date.

Messrs. Dollittle and Whitworth again entered into a friendly competition between themselves with their single-screw tractor monoplanes, and after a very exciting contest the latter carried off the honours of the day.

There will be the usual flying at Kidbrooke, Blackheath, and Lee during this week-end, and the committee invite all interested in "model aviation" to visit the B.Ae.C.'s flying grounds, and if possible to take an active part in the improvement and general advancement there is still to be made in this most interesting science.

The club's subscription is 2s. 6d. per annum, and full particulars of membership, and details of future competitions, will be gladly supplied by the assistant hon. secretary (Mr. L. Brough) to anyone making written application to the above address.

### Bootle and District Aero Club (39, BROOK ROAD, BOOTLE).

The members of the club gave a fine display of model flying on Saturday last, notably Messrs. S. Malins, J. Malins, E. Harley and N. Huntington. Messrs. R. Stephens and R. Danson also did very well. Mr. E. Harley completed the tests for his second class certificate, and thus secured No. 1 of this class with two very fine flights. Considerably over 500 feet distance and over twenty seconds duration.

A new member joined, and the secretary hopes other enthusiasts in the district will not fail to come forward, and help to make the club strong. Will the members who require the Club library books kindly let the secretary know by postcard.

### Brighton and District Model Ae.C. (36, LITTLE PRESTON ST.).

A POINT-TO-POINT competition was held at the Brighton-Shoreham Aerodrome last Saturday. As was expected no model succeeded in covering the square course of one mile. Wind was blowing about 8-12 m.p.h. Mr. Von Wichmann struggled well but gave up. Mr. Bate and Mr. Eburne, of Portsmouth (St. Mary's Aero Club) both completed half course, but after a game struggle, retired. Mr. W. Harold Speer, a well-known London journalist, now Managing Director of Sussex County Film Company, sent operator to cinematograph club—for which many thanks are due. Operator's patience was astounding. During the day many fine flights were put up. Mr. Bate had misfortune to smash model he had had for nearly a year. His  $\frac{1}{2}$  oz. "Baby" did marvellous things. Mr. Burghope's 21 oz. 'bus did badly, flew right out of cinematograph picture, and had to be held and specially taken. It is evidently tired after nearly three months incessant flying, and wants overhauling. Considering the ferocious language which its builder hurled at it, it is not surprising that it refused to fly properly, no self-respecting model would under such circumstances. Mr. Townsend's "Dunne" model did about 50 yds. very stable. Mr. White took photos and flew something inexpressibly funny—still it flew. Messrs. Wichmann, Dower, Wiedmann, Knowles and Frost put up good flights. Some interest was caused by Mr. Burghope's 2 oz. model's high flights and *vols-plané*. Mr. Williams "Mann" type was underpowered.

Messrs. Kirkwood and Orford without their models seemed like lost sheep. Mr. Townsend, Sen., and those other gentlemen who assisted are heartily thanked. Scale models are now "the thing," and six are under construction, including Valkyrie with  $\frac{1}{4}$ -h.p. petrol motor being built by Mr. Wichmann; motor weighs, all on, just over 2 lbs. Machine is to have span of 8 ft. Mr. Burghope is looking for suitable engine for his Nieuport.

Members are asked to try and bring their own geared winders. At present about twelve persons try to use one of the winders at one time, naturally with indifferent results. American clock wheels make good winders for small models. Flying next Saturday at Shoreham. All communications to hon. sec., A. Von Wichmann, "Kingsleigh," Kingsway, Hove.

### Bristol Model Flying (3, ROYAL YORK CRESCENT, CLIFTON).

A SUCCESSFUL meeting was held on the Downs on Saturday last. Wind 10-20 m.p.h. Moore and Pearce's 1-1-2 P models

attained heights of 50-80 ft. and showed good stability. Brewerton's 2E-1-P machine flew well, and Hawse's 20 in. 1-1-P model rose from ground and flew 100 ft. All best flyers were driven by carved propellers. Smallcombe-type machine with drooping wings and slight lateral "vee" showed good lateral stability and sense of direction was not affected by side gusts. When turning into wind models seemed to rise owing to momentum obtained by flying horizontally with wind. It appears that by gliding into wind of increasing velocity "soaring" may be achieved without the aid of rising air-currents.

Next meeting to-day (Saturday), at Sea Walls at 3 p.m.

### Cardiff Aero Club (169, CATHEDRAL ROAD).

THE first meeting of the club was held on Monday week, at their temporary workshop, officials being elected, with Mr. F. Crouch in the chair. There was a good attendance, and a letter was read during the course of the meeting from Major-General Lee, the proposed president, also apologies from absent members. It was decided to hold weekly flying meetings. Also the point of constructing a glider was entered upon. An excellent model of a Blackburn monoplane was exhibited by Mr. H. Beer. Anyone wishing to become a member should apply to the secretary as above.

A very successful meeting of the above club was held on Monday evening the 15th inst., at the club's rendezvous, Cathedral Road. Very interesting flights of models took place at Llandaff Fields, the club's record being easily broken by Mr. Fred Crouch. Major-General Lee has consented to become the first president. In future all communications should be addressed to the secretary, at the club's office and premises, 114, Miskin Street, Cardiff.

### Coventry Aeroplane Building Society (22, KINGSTON ROAD).

THE first annual general meeting of the Society was held in Mayor's Parlour Café, January 11th, Mr. W. A. Weaver presiding, who gave an interesting address on the first and future development of aviation, officers elected for the ensuing year were, president, Mr. W. A. Weaver; vice-president, Mr. J. Lewis; hon. treasurer, Mr. H. M. Carter; hon. secretary, Mr. J. W. Schofield; financial secretary, Mr. L. G. Ryley; committee, Messrs. J. Liggins, T. E. Morton, H. P. Folland, S. Shorter, E. Cobb, A. Collins, R. Rice. A valuable amount of prizes are offered for competition during 1912. A silver cup has been presented by Mr. E. Manville for the longest flight during the year, a gold medal is offered by Mr. Carter as second to this competition, three times winner retains the prizes as his own property. Mr. Weaver offers prizes, cash, 15s. 1st; 10s. 2nd; 5s. 3rd; for distance competition, also Mr. Lewis offers silver medal for duration competition, Mr. Morton offers 10s. 1st; 5s. 2nd; for best scale model, Mr. Folland offers 5s. for original ideas and workmanship, Mr. Schofield offers 5s. for getting off the ground or off water. An exhibition of scale and other models is fixed for end of March. The position of the Society and also the balance sheet was considered to be satisfactory considering that a workshop had been acquired for use of members, and that the Society had lost many of its most promising members who had left the City to take up situations elsewhere. The Society have a field in Birmingham Road for practice flights. New members are urgently required. Comfortable and well lit workshop open to members. Intelligent workers are wanted.

### Croydon and District Aero Club (129, HIGH STREET).

MR. PLUMMER, of the Blackheath Aero Club, had a flight right off the Common, the model finally landing in a cricket ground on the other side of the railway.

On the 10th inst. a meeting was held, at which Messrs. Grenfell, Pavely, Cooper, Weston, and C. and H. Smither were present. Mr. C. Smither had a 1-in. scale model Valkyrie, which managed, after several vain efforts, to fly about 100 ft., and a "W. H. C. Skyhook," which rose off the club box (3 ft. long), and caused great amusement by "looping the loop," and coming dangerously near damaging some of the members. This model has flown really well, and the way in which it rises into the air, and after its flight alights lightly on its chassis, speaks well for its design and construction.

### Dover and District Model Ae.C. (21, GODWYNE ROAD, DOVER).

THE above club held successful meetings on the North Foreland Meadow on Wednesday and Saturday afternoons last week. The weather on Wednesday was excellent, and the members had some fine sport. H. Whorwell put up some fast flights with his two light twin-screw monoplanes, but was unfortunate in breaking both before the end of the meeting; E. N. Joyce also did some good work. Other good results were obtained by H. Holman with a somewhat smaller twin monoplane, and R. C. Wilson with his big twin which always gives a good account of itself; the Secretary's 4 ft. span Wright biplane was tested and gave satisfactory results, but before the meeting was over had to be laid aside for hospital treatment. A. G. Wicks brought up his new model, which did some fine high flights; one of our new members, Mr. C. V. Thompson, had very



hard luck with an experimental model. The Saturday's meeting proved equally successful despite the strong wind. H. Whorwell's model made a record trip across the meadow to the Blériot memorial, Holman gave some of the members a surprise by producing a biplane of about 5 ft. span, which made some very good trips.

At a meeting in the evening it was decided that no professional models be admitted to competitions or in connection with the taking of official records. Will all new members please endeavour to attend the meetings as the success of the club depends on their so doing. New members will be heartily welcomed at our next meeting on Saturday (to-day) at 2.15, on the North Foreland Meadow.

## Dundee Model Aero Club (11, DUDHOPE STREET).

A COMPETITION was held on Saturday, in Baxter's Park, for duration. There was a large turn-out, some good flying being witnessed. Mr. Myles was the winner, with a duration of 65 secs., Mr. Powrie being a very good second. A tractor-screw monoplane was out for trial, but, with one exception, the models were all of the 1-1-P2-0 type. The exception was a 0-1-1-P2, with floating tail.

A meeting will be held in the club-room on Thursday, Feb. 1st, for the purpose of electing a new secretary.

## Ealing and District Model Ae.C. (1, QUEEN'S GDNS., EALING, W.)

A MOST successful flying meeting was held on the 13th, at the ground described last week. Beeching was getting good and consistent flights, some of 350 yards, out of his monoplane. L. Roche frightening everyone by evolutions of his 35-m.p.h. monoplane, which was "looping the loop" constantly, until some rubber was taken off, when good flights were made. His "rising-off-ground" biplane was passenger-carrying with a worm, which crawled on it. Esch's monoplane twice landed in some trees about 250 yds. off, after wonderfully steady flights. Line was flying a very neat model, but had propeller trouble. Chilcott's single-propeller "baby" monoplane flew very well. Chown and B. Kirchner had decent flights with their models, which latter had propensity to circling. Pearson's little model got up to good heights. Ten new members were enrolled, among them Mr. F. Raynham, the well-known aviator, of whom the club can be justly proud. A general meeting will be held after next Saturday's (the 20th) flying meeting, which takes place at 2.30 p.m., at the same field as last week, all being welcome. It is hoped that readers of FLIGHT in this district will join this promising club as, though at present confined to models, when funds permit, gliding will be taken up. Full particulars of the hon. secretary.

## East of Scotland Aero Club (late Edinburgh Aero Club) (care of GRAHAME, 127, LOTHIAN ROAD, EDINBURGH).

At the inaugural meeting of the Edinburgh Aero Club, held in the Maitland Temperance Hotel on the 13th inst., it was decided to change the name of the club. The club will be known in future as the East of Scotland Aero Club. Mr. G. T. Cooper has placed his glider at the disposal of members, and Mr. Wilson, Jun., of the *Edinburgh Evening News*, has promised to present another glider to the club. The list of honorary officials, which is not yet complete, includes Mr. A. V. Roe, of Manchester.

The next meeting will be held on Wednesday, 24th inst., in Maitland Temperance Hotel, Shandwick Place. Pending further announcements, all interested in practical flight should communicate with the secretary. A gliding hill is required, gradient 1 in 5, and the secretary would like to communicate with any gentleman possessing ground of this nature.

## Hackney and District Aero Club (47, JENNER ROAD, CLAPTON).

THE inaugural meeting of the club was held on the 11th inst., when subscription rates, &c., were settled. It was also decided to hold a model demonstration on Hackney Downs, on Saturday, January 27th, at 3.30 p.m., as a means of attracting local attention. All readers of FLIGHT in this district who own flyers will be heartily welcome. Being the first demonstration, it is essential that a good display is given. More members are urgently wanted for this club; all interested are asked to write for particulars to the hon. secretary, Bruce H. Longstaffe.

## Higher Broughton Model Soc. (1, ESKRIGGE ST., MANCHESTER).

THE first general meeting of the club was held on January 13th. Several items were discussed, and general rules and prospectus drawn up. Five new members have been enrolled, viz., Messrs. A. Freedman, H. F. Wood, E. Whittaker, J. W. A. Hirst, and N. Hirst. Although the above are only new they have already begun to build their respective models, and hope to have them in full trim shortly. Mr. E. Hurlston and Mr. C. Sewelson have almost completed monoplanes of their own design (tractor screw types).

The hon. sec., Mr. W. M. Bloomfield, would be pleased to hear from intending members at the above address.

## City of Liverpool Aero Club.

A MEETING of the above Club will be held on January 22nd, at 7 o'clock sharp, in the Wayside Café of the City Beautiful,

Harrington Street. The yearly subscription of 5s. is now due, and may be paid at the next meeting.

## Manchester Model Ae.C. (40, BIGNOR STREET, CHEETHAM).

A lecture entitled "The Progress of Mechanical Flight" will be given by Mr. J. Carr in the Y.M.C.A. Building, Mount Street, Manchester, on January 31st, at 8 p.m.

During the next session of the flying meetings, which will open in the spring, competitions will be held on a scientific basis, so members may be preparing models with this end in view.

## Paddington & Districts Ae.C. (133, BUCHANAN GDNS., HARLES DEN)

AT the club workshop last Saturday, before a good muster of members and visitors, Mr. Hurlin delivered a lecture on "Details of Model Aeroplane Construction." After most ably dealing with designs and bracing of frames, methods and points of fixing king-posts, plane-making and fixing, &c., he expressed his opinion that the time had arrived when technical institutions and secondary schools should receive Government grants for the equipment of laboratories and workshops, and qualified instructors to teach the science of aviation free, or at least at a moderate charge, within the means of those who desire to investigate and pursue this new science, which will in the future be vital to the safety of the Empire. Following this remark, Mr. Weston gave a practical demonstration of model propeller bending, which created keen interest and attention from those crowded around him.

Six new members were elected, namely, Messrs. Barnes, Dixon, Hill, F. Pinniger, R. Pinniger, and Wood. Subscription 1s. per month; anyone joining now, 1s. entitles membership to February 29th. Hon. Sec., W. E. Evans.

## Palmer's Green and District Model Ae.C. (15, MOFFAT RD., N.).

LAST Saturday turned out a miserable day, mist and fog being very prevalent. However, a dozen or so enthusiasts turned up, one or two being keen on trying new machines. Mr. E. R. Brown's 2½-oz. model flew splendidly at great altitudes. Its spiral *vol planes* were a treat to watch. Mr. Longland's machine of the "Mann" type was also flying well in sweeping circles. Its bathe in a neighbouring stream evidently did not do much harm as it continued to do well. The "Ridley" type monoplane of Mr. Trollope was having an "off" day; its adjustment seemed to cause the owner much anxiety.

Competitions in the future, unless further notice is given, will be held at the Powys Lane ground as better accommodation cannot be found locally.

Members are reminded of the "Distance" competition, organised by the Aero Models Association, at East Finchley on January 20th, and also of the club events the week following.

Members will also be glad to know that Mr. Ghimmer, who needs no introduction, has kindly consented to be president of the club and has, in addition, offered a standard "Mann" monoplane for a prize in an open "Duration" competition to be organised by the Palmer's Green and District Club.

Particulars of this event will be published in FLIGHT after the next club meeting.

## Polytechnic Gliding Club (17, GLENTHORNE RD., NEW SOUTHGATE)

A PRELIMINARY meeting of the proposed Polytechnic Gliding Club was held on Friday, January 12th, at the Polytechnic, Regent Street. Mr. B. Graham Wood occupied the chair, and explained to the members present the objects the club have in view. Several members were unavoidably absent, and it is particularly desired that their attention should be drawn to the following notice:—All members are requested to communicate with the secretary as soon as possible, stating which evening will be most convenient for them to attend the club meetings. It has been proposed that the meetings be held either on Thursdays or Fridays.

The services of Mr. L. Blin Desbleds have been secured as technical adviser, and Mr. B. Graham Wood (certificated pilot-aviator) has consented to act as designer and chief pilot for the club. In view of his extensive gliding and constructional experience, Mr. Wood's services will be a valuable asset to the club.

Another meeting is to be held during the current week, and further particulars will be forthcoming at an early date. Meanwhile anyone interested who is desirous of obtaining these particulars can do so by communicating with the secretary as above, without placing themselves under any obligation whatever.

## Reigate, Redhill and District Aero Club (4, LONDON ROAD).

SEVERAL members were out on the Earlswood flying ground on Saturday. Mr. A. Lewis having his "Almono," a very speedy and stable machine of his own designing. It is of the 1-1-P2 type, with a curved plane brought well back at the tips, and is a good "climber." He obtained several flights well over 250 yds. at an height of about 80 ft. Mr. Norton had out another new machine, and succeeded in covering 150 yds. with it. He also had it out on Friday night, and experienced the joys (?) of searching among damp heather and grass with a pocket lamp, for nearly half-an-hour, for



the model, which had circled and landed not many yards from him. Mr. Cox, a new member, also obtained flights of about 150 yards. Up till now he has been an enthusiastic kite-flyer, and if he is as successful with his models as with his kites, he will soon be taking certificates. Messrs. R. and M. Wilson, and Morris had their machines out at Buckland. Mr. R. Wilson had bad luck in lodging his model in the top of a tree when it had covered over 150 yds., and was still well up and going strong. Mr. Morris had out a new floating tail model, which in landing, after travelling about 200 yds., broke the main plane too badly to be temporarily repaired. Mr. M. Wilson was as usual doing useful flights of 200 to 250 yds. On Saturday, January 20th, several members are making their attempts for their third-class certificates, and also the club is holding a demonstration on the Earlswood ground. Those interested are heartily invited to attend, and also to note that 'buses run within a minute's walk of the flying ground. The membership is steadily increasing, and prospective members are invited to write to the hon. secretary for particulars.

#### St. Mary's Model Ae.C. (THE VICARAGE, KINGSTON, PORTSMOUTH.)

THE monthly business meeting was held on Wednesday, January 10th, when there was a good attendance of members, and the following items were arranged. Certificates are to be given to members who can qualify for them and rules for same were drawn up. There are to be three grades, 1st, 2nd and 3rd, and one so arranged that a very decided improvement must be made on present designs in order to qualify for a first-class.

Monthly competitions are to be held on the second Saturday of each month for which marks will be given. The member obtaining the highest number of marks in six months to be declared the winner. A suitable prize will be arranged for later on. A glider is to be built in the spring, and arrangements have been made for a large shed. The work will be started as soon as the days lengthen out a bit. A juvenile branch has been started at the reduced rate of 3d. per month.

The hon. secretary will be glad to hear from anyone in this district who is interested, as more members are wanted. The subscription is 8d. per month, and an entrance fee of 6d.

Saturday, January 13th, was really the day for the first monthly competition but as it came so close on top of the meeting when it was decided to hold them, the committee agreed to postpone the competition until Saturday, January 20th. The weather conditions were ideal for models as there was practically no wind although it was dull. A good percentage of members were out tuning-up for next Saturday, and some very fine flights were made by the Bros. Restall. Mr. E. Restall started off with a flight of 360 yds. with a machine that had never been in the air before, and this flight was only stopped by a tree. After that he made  $\frac{1}{4}$  mile and over every time he launched it. Mr. C. Restall made some fine flights with an all wood machine and also with another having a big built-up plane, 3-ft. span driven by two 8-in. propellers, average distance flown 200 yds.

#### Salisbury Model Aero Club (39, CATHERINE STREET.)

THIS club has now been reorganised on a sound footing. A meeting was held at the Victoria Coffee Rooms, Butcher Row, where 15 members were enrolled. The programme for this year includes Saturday and Wednesday teams for monthly distance and duration prizes, the winners being those who fly one scaled model the greatest aggregate distance and duration throughout the month. There will be a flying meeting for competitions of all classes of models each month, and silver medals figure among the prizes. A few members held a friendly contest last Saturday by way of a start, the longest distance, 750 ft., being put up by the secretary (under imperfect conditions). Anyone interested in the sport in the district should communicate with the secretary for full particulars. The subscription is 4d. fortnightly, and the next meeting will be on January 23rd at Butcher Row.

#### Scottish Ae.S. (Model Aero Club) (6, McLELLAN STREET, GOVAN.)

ON Friday of last week Messrs. Mills and Donaldson jointly delivered an excellent address on "Propellers." There was a large attendance of members and friends, and the discussion at the close of the lecture was extremely keen. During the evening Mr. Mills explained the working of a machine which he has made for testing the propeller pitch. Mr. Donaldson brought a tractor monoplane which rose easily from the floor, and Mr. Graham passed round for inspection a beautifully laminated propeller made by Mr. Boyd, which is intended for use with Mr. Graham's petrol motor. On Saturday there was a poor turnout at

Ibrox, but much useful work was done nevertheless. Mr. Ross made some really brilliant flights, and we should hear more about them soon. Mr. Graham had out a small model which made some really good flights. Mr. Boyd's low-powered model was flying well all the afternoon, some of the flights being of 40 to 50 seconds duration. Mr. Gordon's model with Etrich plane made some very steady flights. Afterwards, the main plane was detached and with a suitable weight in front was converted into a very efficient model glider. After trials it was fixed to Mr. Gordon's big kite which carried it up to a good altitude when it was released by pulling a string. At Winton Drive there was also some excellent flying. Mr. Langlands had a few good flights, one of which was about the  $\frac{1}{4}$ -mile in a circle, and one of 1,000 feet in a straight line. Mr. Langlands made also a fine duration flight, the model being lost to sight at 52 $\frac{1}{2}$  seconds. Mr. Balden was propeller testing, and had some good results considering that he had only 400 turns on his elastic. The first competition for the aggregate prize will be held to-day, Saturday, at Barrhead Aerodrome, flying to commence at 3.0 p.m. sharp, a large attendance is requested. On Friday evening, January 26th, at 8 p.m., Mr. F. Norman, of the Scottish Aviation Co. will deliver a lecture to the members and friends. All readers of FLIGHT in the district are heartily invited.

There will be a flying meeting at Ibrox next Saturday, January 27th, when kite-flying and model gliding will also be included in the programme.

#### Smithills (Bolton) Aero Club ("LIEUTENANTS," BOLTON.)

ON Friday last week a quarter-miler was being tuned-up and some very good flights were made. On Saturday three long-distance flyers were out, all of them flying well. It was on this occasion that the club record was broken by E. Boothman with a twin-propeller model. Some very high flights were made during the week, and long distances were obtained. The two exhibition models were completed on Monday and have been entered for the competition. Several double-propeller models are in the course of construction for a competition which will probably take place in February. A. Hall was elected as a new member.

#### Stony Stratford & District Kite & Model Ae.C. (OLD STRATFORD)

THE members' general meeting which was held on January 11th at the club room was the most successful meeting that this club has held and everyone present went away feeling well pleased with the club and its members for the excellent programme arranged.

The secretary read correspondence he had received from the Bootle and District Aero Club. The chairman afterwards called upon Mr. O. Hamilton, Sen., for his address "Experiments and how to make them." The lecturer briefly dealt with the early experiments of the old alchemist, and emphasised the fact that if an experiment produce a negative result it was not necessarily a failure, because an experiment to be of any value should be a comparison. On the proposition of Mr. Brown, seconded by Mr. Moore, "a hearty vote of thanks was accorded the lecturer for kindly visiting the club and giving such a helpful lecture." As noted in last week's FLIGHT, Mr. R. W. Field is the speaker for the next meeting.

A few reports are to hand this week of machines building and testing, one member has been experimenting with a Dollittle-type tractor self-rising monoplane, and another member is about to put on the stock a Mann-type monoplane. The secretary's biplane was tested during the dinner hour on Saturday but owing to lack of power did nothing great, but the stability of the machine was stated by those who saw it to be excellent.



A few competitors of the Worcester Model Aero Club at their meeting on January 6th.

Will members please note that FLIGHT is the only source in which notices of all meetings will appear, will members also make a special effort to make a show on the club ground as it will go a long way to increase the strength of the club.

## Worcester Model Aero Club (VICTORIA INSTITUTE, WORCESTER).

ON January 13th nine models were out, and some good flying was watched by a number of interested spectators, several of whom are prospective members. Mr. F. Smith raised the club distance record to 110 yards, he having a close rival in Mr. P. H. Colton, whose model showed excellent form. Mr. Sears experienced bad luck, breaking the elevator of his model at the end of the first flight.

Flying will take place as usual to-day (Saturday) on Pitchcroft, at 3 o'clock, when several members intend to attack the somewhat low distance and duration records.

## Yorkshire Ae.C. (Model Section) (5A, HULLAND ST., LEEDS).

IN spite of a very tricky wind a pleasant afternoon was spent in East End Park on Saturday last. As usual, Mr. Whittaker turned out in fine style, doing "quarters" with apparent ease. Master J. Dobson's 2 ft. 6 in. monoplane proved to be a very good flyer, for

the gusty wind did not seem to bother it in the least. Mr. Thornton's model suffered from "stage fright," refusing to fly until practically all the spectators had dispersed. Other good flights by Beckett, Smith, and Roberts. Meet to-day (Saturday) at Carlton Hill Aerodrome, usual time.

## SCHOOL AERO CLUB.

### Southgate County School Aero Club (84, BOWES ROAD, N.).

DURING the last few weeks several members of the club have shown their enthusiasm by turning up at the flying ground almost every fine day, Reed, Ellingham, Herring and Redottée, being rewarded by some good flights. During the last week no less than six models belonging to E. R. Brown have "landed" in trees and telegraph wires, and although they have been rescued in each case by showers of stones, &c., the result was neither satisfactory as regards the appearance of the models or their flying capacity. Will all members please get well supplied with model-making materials so that construction work may be started in real earnest next term?

If there are any other school aero clubs in existence in North London the secretary would be pleased to hear from them at the above address, with a view to arranging inter-school competitions.

# CORRESPONDENCE.

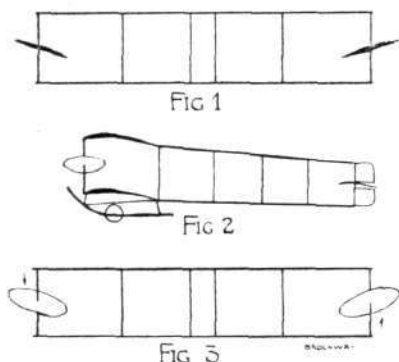
\* \* The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which have appeared in FLIGHT, would much facilitate ready reference by quoting the number of each letter.

### Lateral Stability.

[1466] In the last paragraph on page 850 of issue of FLIGHT September 30th, your correspondent "Oiseau Bleu" briefly describes a lateral stability control which has been successfully tried at Juvisy. From his description the device mentioned is identical with one I provisionally patented nearly two years ago, and a model of which was exhibited on the Aeroplane Supply Co.'s stand at the 1910

Aero Show at Olympia. I was then building a machine on which to try same but business took me abroad and the matter was in abeyance until I returned recently. I am now getting ready to experiment again, but unless I can get some firm to try it on one of their completed machines it may be some time before any results can be published. In the meantime can you inform me whether there has been



any application for English Patent rights?

The controlling planes in my arrangement were intended to be circular in plan, and by being fixed on front struts would take the place of an elevator. Enclosed sketches will probably make clear the main principles of my provisionally patented arrangement.

F. G. BROCKWAY.

### Hydro-Aeroplanes on Windermere.

[1467] Canon Rawnsley has written to *The Times* and several other papers a poetic appeal calling on all lovers of the English Lakes to rise and protest against this new invasion of the charms of Windermere. He will not complain if I point out that his appeal is one-sided. He represents flying as a dangerous pastime indulged in at the expense of the surrounding neighbourhood. He does not tell you of the country's need of more trained flying men, and of better and more diverse machines; or how the United States Navy have adopted hydro-aeroplanes, or how Germany and Holland are anxiously inquiring all about the new machine which he is so anxious to wipe off Windermere. He does not tell you that Windermere is an ideal place for experimental purposes—more than five square miles of open flat area—that there is no other place so good, taking it all in all, in the whole country, perhaps even no other suitable place available; that my machine reduces the risks of flying to a minimum; that almost everyone who has seen it flying agrees that it adds to the great natural beauty, like a fine bird, between water and sky in the changing lights.

It is true, as Canon Rawnsley tells you, that my plane does not fly on Sundays, or over Bowness or Windermere. Nor does it ever pass over, or too near the steamer loads of cheerful tourists,

who, so far from being afraid of it, are delighted to see the new, interesting and beautiful bird-like thing. "Windermere is a real national asset." Yes, certainly. Let us make use of the asset, and in doing so improve its value.

With poetic licence the canon continues, "It may be imagined with what alarm the whole neighbourhood had heard" that I have "suddenly determined to turn Bowness itself into a manufacturing centre," &c. The fact is that I am erecting one shed near Cockshot Point. It will be painted a quiet green to match the foliage by which it will be largely screened. It will also be hidden from Bowness by existing boathouses, some of which are larger and taller. In no accepted sense will it be a "factory." The rules of the lake will of course be observed, and it will be clearly impossible to attempt flights (as suggested) from any such place.

Then it is asserted that "there will be real danger." My object has been from the first to eliminate every source of danger in flying that could be eliminated. I claim to have succeeded so far. Surely it must be obvious that if I cause an accident I do the greatest injury to the objects I have in view, and also incur serious losses myself. Another thing which could not be gathered from Canon Rawnsley's letter is that I come of many generations of Westmorland men, and yield to no one in love for the scenery, and loyalty to the interests of my county.

But many, who along with me learnt during the war in South Africa, the value of scouting, believe that scouting by hydro-aeroplane will shortly become a necessity for the safety of this island—the island which contains the scenes and the faces we love. England is too far behind other powers in air craft and in flying men for both Army and Navy; and although I can now offer a successful British hydro-aeroplane, to adapt it for use on the sea, for carrying an observer, a wireless installation, &c., many further experiments will be necessary. These are already in progress, but it is quite possible for well-meant, but uninformed clamour to put it out of my power to make them. Would not this be the real "shortsightedness."

I appeal to all lovers of our country to rise and protest against this new and short-sighted attempt to throttle the young and struggling, but to England, most necessary science of flying from water.

Windermere, January 11th.

E. W. WAKEFIELD.

### The Fowler Accident.

[1468] As there were many and various causes assigned for my accident in the daily papers, I should be pleased if the true reason appeared in your paper.

The facts of the case were this: as soon as I got over Southampton Water I ran into a thick bank of fog, blown up by the wind which had freshened considerably. I could hardly see fifty yards ahead, and rather than run the risk of getting lost I decided to turn and get back to land. In the turn I must have dropped considerably, and, owing to the fog, before I had time to realise it, I found myself uncomfortably near the water. I did all I could to get the machine to rise, but owing to there being a fairly stiff breeze behind me I could not get her up quick enough, with the result that I struck the water going all out. Needless to say she turned a somersault and smashed herself almost to atoms. The air bag I had on kept her



afloat, although even with that the only part that did keep above water was the tail and elevator.

F. B. FOWLER.

### Natural Stability.

[1469] May I be allowed to point out to Mr. C. W. Beckmann that my invention is for "improvements in aeroplanes" and not for *kites*. There is a vast difference between the two.

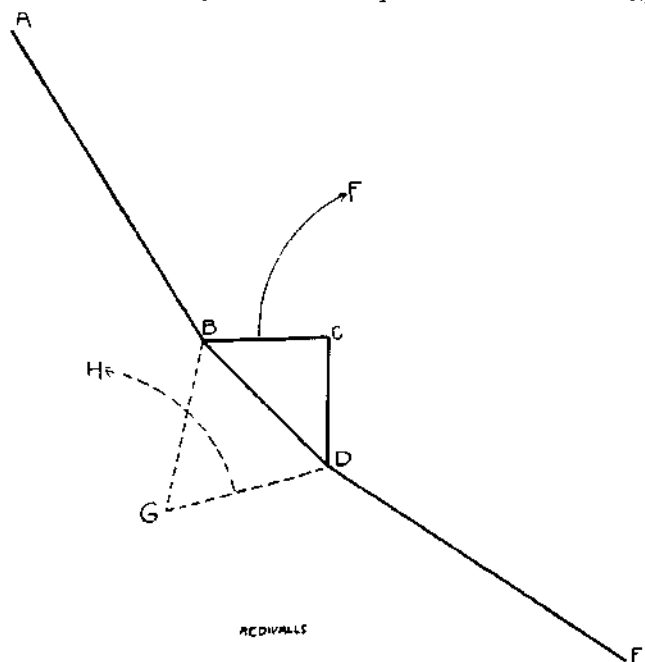
As Mr. W. Le Maitre has drawn our attention to his invention I presume he invites criticism, and I therefore propose to show that, although I have no doubt his monoplane would certainly right itself, still it has two objections from my point of view.

First: I do not agree with a low centre of gravity because I am afraid it would result in a lateral pendulum motion.

Secondly: Long before taking out my patent I tried a "triangular duct arrangement" although unaware of his invention. I, too, found that a low c.g. was essential. The reason is obvious. In the illustration we see a monoplane of this design "banking" in presumably circling. It will be apparent that the panel, B C, is now exerting a lift whilst panel C D is not. Unless you use a low c.g. the lifting effect of plane A B, plus panel B C, being much greater than that of plane D E, it will certainly cant the monoplane further in the direction of F in horizontal flight.

On the contrary, one of the chief points of my invention is that the panel, D G (dotted lines), more than counteracts the effects of panel, B C, by virtue of its greater area by exerting a greater lift in the direction of H.

Scientifically, too, if you place a "triangular duct" *over* the plane you must also place one *under* the plane. Otherwise a side wind would cant the monoplane over. The pendulum action of a low c.g.



would be more apparent, as it would be continually righting the monoplane. I will anticipate further correspondence by stating that I have also tried my monoplane without panels, B C and C D, and without a low c.g., taking out a provisional patent, and subsequently abandoning it.

I found that a side wind caused a rocking motion, and that in a vertical fall the resistance of panel, G D, prevented it righting from vertical to horizontal. I am quite aware that this panel in theory somewhat counteracts the effect of panel, D C, in a vertical fall, but the increased lift and the dihedral-angled planes in combination completely overcome it.

Of course, a bird has in its body a counterpart of my irregular diamond. It is obvious that it presents an extra lifting surface, G D, when canted over, and that it has no counteracting lift at B C, owing to being an *enclosed* body. In fact, the resistance at B C is a *downward* one, thereby accelerating stability. Therefore, if you close my irregular diamond panels in stream-line form, you have a perfect *natural self-righting* monoplane. But you must not forget the extra resistance which our experts so very much impress upon us. How they are going to obtain natural lateral stability without extra resistance I do not know, if my invention does not supply it.

Eccles.

WILL H. BOOTH (Redivalls).

### "Ergaer."

[1470] Independent testimony may be of value in testing previously recorded observations. Hence, perhaps, it may be of

interest to your readers to have the results of an unprejudiced observer, albeit his qualifications in no way compare with those of the able writer of the articles you have been publishing on "Bird Flight."

A fortunate chance gave me the welcome opportunity of going to Agra, and making Dr. Hankin's acquaintance.

The neighbourhood of Agra is a splendid field for making observations on the soaring flight of birds. Five miles out are extensive meat-curing establishments, where carrion birds abound. Of these there are seven varieties, gradually increasing in size from the common cheel to the weighty adjutant bird.

At this time of the year the nights are still and cold, the days bright and cloudless, with little or no wind, ideal conditions for verifying observations on soaring flight.

On December 3rd Dr. Hankin motored me out to Jharna Nullah. On arrival, about 9.14 a.m., immense numbers of birds were standing about, the ubiquitous cheels were flapping in the air. Occasionally some other bird would make a short flight and re-settle.

As the sun got higher and the air warmer, the cheels commenced soaring, the heavier birds would rise flapping and attempt short glides only to come down again. The analogy of a skater venturing on to doubtful ice and retiring, instantly occurred to one.

Gradually and in strict succession, each variety of bird took wing and remained soaring. Finally in an hour's time all the varieties were in the air, except the adjutant birds, the order of starting being in accordance with their respective weights. First the cheels, then the scavengers, eagles, common vultures, and black vultures. Unfortunately we had to leave before the adjutant birds got up. The following is a verbatim transcript of the notes I made independently on the spot. The notes would have been more valuable had my power of observation been better trained. Many details escaped recognition simply from this cause.

9.25.—Cheels circling, bright sunshine, faint air from W. Slight haze, low lying.

9.30.—Cheel gliding just overhead, tail twisting.

9.31.—Scavenger flap gliding. Dip of right wing turning to right.

9.33.—Cheels slow flex gliding up wind.

9.34.—Cheel circling in small circles 30 feet up, slight movements of wing tips visible, also tail twisting.

9.36.—Black vulture flap gliding in circles.

9.37.—Scavenger suddenly checked speed overhead and dropped legs momentarily, then continued flight (Note i).

9.40.—Cheel circling to right, forward thrust of inner wing for a moment (Note ii).

9.41.—Loose downy feather gradually descending amid circling cheels above and below.

9.43.—Vultures still all on the ground.

9.47.—Scavenger flap circling.

9.48.—Same bird settled.

9.53.—Cheel slow flex gliding up wind without loss of height for 200 yards.

9.57.—Common vulture flap gliding up wind.

10.0.—Breeze increasing, 8 to 10 miles an hour.

10.3.—Scavenger circling.

10.5.—Vultures flap gliding up wind.

10.7.—Adjutant flap gliding.

10.8.—Several vultures up, flap circling. Dip movements for steering, drifting to leeward.

10.11.—Vultures circling, occasional flaps.

10.13.—Vultures circling, no flapping.

10.14.—Cheel tail jolting (Note iii), many vultures up.

10.25.—Black vultures circling.

Note i.—Apparently to avoid a collision.

Note ii.—To check over-banking.

Note iii.—Dr. Hankin had observed this several times before I could discern the movement.

The observation recorded at 9.41 is particularly important. It is conceivable that the column of circling cheels could have been supported only by an ascending current of air, which failed to support a loose bit of downy feather. The birds were passing above and below the bit of white down, without loss of height or change of course, which shows that the feather was not in the descending centre of an ascending hollow column of air.

I regret that it was not possible to wait and observe when the adjutants finally begin to soar.

Certain facts at once obtrude themselves on consideration. Birds do not soar at all times. The lighter birds commence soaring before the heavier ones. Birds may be seen flap gliding for short flights, apparently testing the soarability of the air. Finally, under the influence of the sun's rays the air becomes soarable. This soarability is not due to ascending local currents, witness the incident of the falling feather.

I omitted to mention the fact that on December 3rd birds could be seen soaring in all directions over a very wide stretch of country, both over the low lying huts of the meat-curing establishment and over the surrounding flat, bare country intersected with nullahs and ravines.

It appears to the writer that the inevitable deduction must be—that under the influence of the sun's rays the air becomes in some way soarable; and the theory that birds can only soar in ascending currents of air becomes untenable.

Personally, I feel a debt of gratitude to Dr. Hankin for the extremely valuable articles on "Bird Flight" which have come from his pen. It is to be hoped that others may follow his lead and co-operate in elucidating the problem.

Agra. H. R. COOK, Major R.G.A.

[At first sight, the sequence in which the birds begin to soar agrees so closely with what one would expect on the assumption that their support is due to sun-heated up currents which may reasonably be expected to grow in strength with time, that the especial significance of the observation in its relationship to Dr. Hankin's sun-light theory may readily escape notice.

It is, for instance, somewhat natural to regard "Ergaer" as a quantity of something in the atmosphere because it appears to be a function of time. The fact that the birds, once up, continue soaring in the same zone shows, however, that the state of soarability is maintained. It seems, therefore, as if the time function has no relation to quantity, but is merely an index of the intensity of the sunlight, the mere presence of which *instantaneously* "ergaerifies" the atmosphere as fast as the energy is extracted therefrom. In a previous article we have suggested that "ergaer" may be an electrical phenomenon. If the soarability were due to up currents, the energy would be due to a physical circulation of the atmosphere in mass, a condition that can only be regarded as an atmospheric state within a limited zone. There is no need to suppose any such circulation effect in the conception of "ergaer."—ED.]

## AIRSHIP NEWS.

### "Selle de Beauchamp" out Again.

ALTHOUGH she has been inflated for over three months, the "Selle de Beauchamp" had no difficulty in lifting a load of 1,700 kilogs. of ballast, and a crew of nine persons, on Monday week. During a cruise over the Moisson plain, even against a strong wind, the Panhard motors easily drove the airship at a good speed.

### France Not Finished with Dirigibles.

ACCORDING to a recent speech of General Roques, the French Inspector of Military Aeronautics, the airship is by no means played out yet. It has proved its utility for night reconnoitring, and now that higher speeds are being obtained it should not be dependent so much on the weather. The airship also permits of the transmission of trustworthy information in a way not possible with the aeroplane, while wireless telegraphy may also be utilised.

### The French Rigid Airship.

IT is hoped that the dirigible which has been built for the French Army on the Spiess rigid principle will be ready for its trials in the spring. The aluminium framework supporting the main gasbag is complete, and the work of installing the two 120-h.p. motors is being proceeded with. The balloon is 90 metres long, while the car is 60 metres long, and it is hoped that the airship will carry from 20 to 25 passengers. Four propellers are being fitted, one pair being arranged at each end of the car.

### The New Clement Bayard Airship.

THE new Clement Bayard airship will be slightly smaller than its predecessors, as the cubic capacity of the envelope will only be a thousand cubic metres. The gas bag will also be different in not having the usual elevator, but instead a rib will be arranged along its centre line. The airship will be fitted with two motors of 120-h.p. each, while a novel feature will be a special bomb-launching apparatus.

### The "Adjutant Reau" at the Hunt.

ON the 10th inst., the dirigible, "Adjutant Reau," left Issy at 10 a.m., having on board M. Deutsch de la Meurthe and several friends he had invited over for a hunt. Three quarters of an hour later the balloon came down in M. Deutsch's grounds at Romainville, close by Meulan, and the chase commenced as soon as the huntsmen had mounted their horses, while the dirigible returned home meantime. The airship was also out for a long time on the 12th inst., and passed over Paris.

### French Army takes over "Adjutant Reau."

ON the 13th inst., the Astra-built airship "Adjutant Reau" made its last trial before being taken over by the French Military authorities. The dirigible was taken for a lengthy trip over Paris

with seventeen persons on board, including a number of army officers. On the previous Friday it had made a flight of about 400 kiloms. in eight hours during a snowstorm.

### More Trials With "Capitaine Ferber."

WITH eleven persons on board, the Zodiac dirigible "Capitaine Ferber" made a long voyage over the Beauce Plains on the 10th inst., and on the 12th it underwent its first official speed trial over a course of 90 kilometres. The airship was piloted by Count de la Vaulx, and the average speed worked out to about 55 kilometres an hour. On the following day an altitude trial was carried out over a circuit embracing St. Cyr, Versailles, Marly, Breteuil, Bonnelles, Limours, and Chateaufort. The greatest altitude attained was 1,670 metres.

### The "Adjutant Vincenot" at Toul.

DURING last week flights were made almost daily with the "Adjutant Vincenot" at Toul and on the 13th inst. it was out both in the morning and the afternoon. On the latter occasion during a cruise of an hour and a half it made a reconnaissance over Luneville and passed along the Meurthe Valley to Nancy, after which it returned to its headquarters at Toul.

### A Zeppelin to Visit Kiel.

IT is stated that arrangements have been made for a Zeppelin airship to visit Kiel during this year, and it is probable that Count Zeppelin will take the "Schwaben" there himself, paying a visit en route to Schleswig-Holstein and Hamburg.

### A New German Airship Station.

A NEW giant dirigible shed is being built at Thorn, on the east frontier of Prussia. It will be 490 ft. long, 163 ft. wide, and 98 ft. high, capable of housing two airships of the Zeppelin type.

## Aeronautical Patents Published.

Applied for in 1910.

Published January 18th, 1912.

27,610. P. DE MONTGOLPIER. Aerial vessels.

Applied for in 1911.

Published January 18th, 1912.

255. W. E. DENNIS AND H. S. BRETTON. Flying machines.  
8,108. H. L., A. S., AND H. O. SHORT. Propelling mechanism for flying machines.  
20,707. E. WILSON. Launching device for aeroplanes.  
21,905. C. W. VAN DEURSEN AND J. KNEPPERS. Propelling device.

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